AMERICAN ARTISAN

WARM AIR HEATING • SHEET METAL CONTRACTING • AIR CONDITIONING

PUBLISHED
EVERY OTHER

BRUARY
1933

True Talks
with successful sheet metal men

SERIES No. 2 **NUMBER 6**

MONEL METAL JOBS HAVE BUILT A PROSPEROUS BUSINESS FOR THIS KALAMAZOO CONTRACTOR

Mr. E. E. Scharer, Manager and Treasurer, Kalamazoo Sheet Metal Manufacturing Co.

● Here's proof that Monel Metal jobs pay! It comes to you first-hand from Mr. Erwin E. Scharer, Manager of the Kalamazoo Sheet Metal Manufacturing Company of Kalamazoo, Mich. This firm is one of the most successful sheet metal contractors in the Wolverine State, and its present position represents a steady, prosperous growth of 33 years.

"We have built our business and reputation on quality products and workmanship," says Mr. Scharer. "We have done work for all the manufacturing companies in this locality and consider all of them our customers.

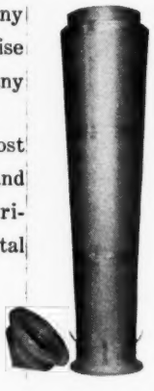
This 22 gauge, No. 8 grind finish Monel Metal range hood is a good example of the Monel Metal work that is making money for this Kalamazoo contractor.

There's never a dull moment in the Kalamazoo Sheet Metal Manufacturing Company's modern, well equipped plant.

"Our experience with Monel Metal has been very gratifying. We have used this metal for over a period of 5 years and have never had one complaint registered against it. We have had to compete with other high class metals but have found Monel Metal superior to all.

"Our Monel Metal work consists of many special fixtures for our local pharmaceutical plant, such as funnels, dippers, tanks, percolators, table covering, trays and many other items too numerous to mention. In fact, this user is substituting Monel Metal for all of their equipment where acid resisting qualities are required.

"We have also made kitchen cabinet tops, range hoods, drain boards for homes, and similar equipment for confectionery stores. In addition, we have made dippers and containers used in paper mills and chemical plants for handling sulphuric acid. Practically all of our jobs have been 'all-welded' jobs to avoid any trouble that might arise from using solder or any other similar metals.



A 16 gauge Monel Metal percolator used for extracting drugs from herbs by the Upjohn Co., Kalamazoo. It is 26 inches in diameter and 95 inches high and has acetylene welded seams.

"We find this the most satisfactory method and know from our experience that Monel Metal welds perfectly. We have used Monel Metal in all weights from 10 gauge and lighter in both the plain and polished finishes. We can recommend Monel Metal most highly and find that it produces profitable business."

The Kalamazoo Sheet Metal Manufacturing Co. is making money on Monel Metal equipment . . . and there is no reason why you can't do the same. Write for sales literature specially prepared for your use.

WHEN you select Inland Copper-Alloy for use on your own roofs, for warehouses, factories and the like, you economize—you get more years of service per dollar cost.

When you buy it for a customer's roof, or to manufacture into products for sale, you add the most universal and powerful sales appeal of all—more value per dollar—at little additional cost. For copper-bearing steel costs very little more than ordinary commercial grades of steel, less than any other corrosion-resisting metal—much less than most.

And copper-bearing steel endures longer—wherever there is moist air.

Ask for literature on this enduring, extra-value steel. Supplied as sheets, bars, structurals, any rolled product. INLAND STEEL COMPANY, 38 So. Dearborn Street, Chicago, Illinois.

COPPER-BEARING SHEETS LEAD

Iron and steel sheets have been ranked according to rust and corrosion resistance under atmospheric conditions by the American Society for Testing Materials ranking based on tests at Fort Sheridan, Annapolis and Pittsburgh. Copper-bearing steel sheets lead the list.

INLAND
ABLE SERVANT OF THE CENTRAL WEST
STEEL

Sheets Strip Plates
Bands Structurals Piling

Rails Track Accessories
Bars Rivets Billets

Covering All Activities
in
Gravity Warm Air Heating
Forced Warm Air Heating
Sheet Metal Contracting
Air Conditioning
Merchandising
Ventilating

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CONTENTS

Entered as second-class matter, July 29, 1932, at the Post office at Chicago, Illinois, under the act of March 3, 1879. Formerly entered on June 25, 1887, as American Artisan and Hardware Record

Did you get this New Price List?

GREAT PRICE REDUCTION

Prices of Parker-Kalon TYPE "A" Hardened Self-tapping Sheet Metal Screws have been greatly reduced. Good news for sheet metal workers! No longer is it necessary to take chances with imitations that give imitation results. Now the genuine and only Sheet Metal Screw . . . made by Parker-Kalon . . . can be used to save time and labor on *every* sheet metal job. Sold only through recognized jobbers. *Ask Your Jobber for the New Price List.*

Parker-Kalon Corporation, 190 Varick St., New York

PARKER-KALON

HARDENED TYPE A SELF-TAPPING

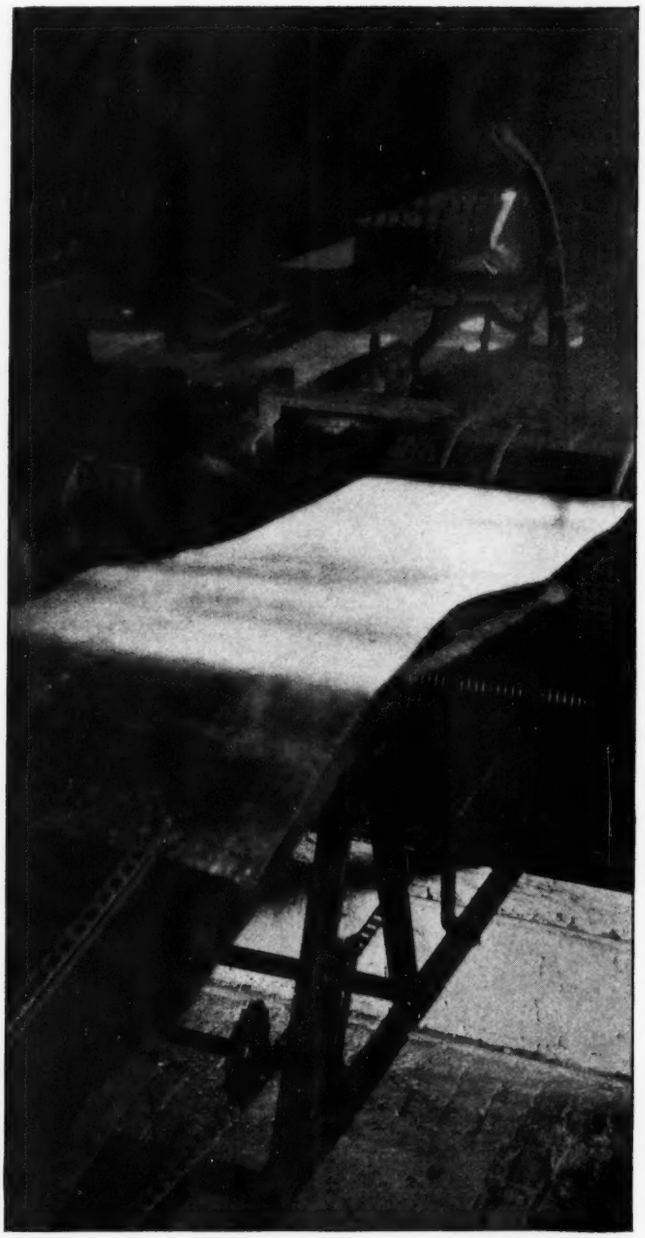
Sheet Metal Screws

PATENTED-NO. 1465148.

Remember, there's only one Sheet Metal Screw, PARKER-KALON

Imitations give imitation results

Let's put on the Spangles



THERE'S a right way of galvanizing and a wrong way. For galvanizing isn't just the simple operation of running the sheets through a bath of zinc spelter.

There are temperatures to control, weights to consider, the proper speed through the bath to be determined, — factors which affect the tightness and weight of the zinc coat.

And all of which depends upon the skill and experience of the galvanizing operator.

But it's when you combine galvanizing well done with a sheet such as GOHI that you have the perfect, long life, low cost ferrous metal.

This pure iron copper alloy, long lasting and corrosion resisting in its own right, is even more so when covered with the perfect galvanizing that Newport methods assure.

Easy to work, to cut, shear, bend, shape, draw, and weld, GOHI is the ideal material wherever a sheet metal is required.

GENUINE OPEN HEARTH IRON
TRADE GOHI MARK
PURE IRON - COPPER ALLOY
REG. U.S. PAT. OFF.

IT'S THE PURE IRON, ALLOYED WITH THE RIGHT AMOUNT OF COPPER, THAT GIVES GOHI ITS LASTING QUALITIES.

GOHI

PRONOUNCED "GO-HIGH"

SHEET METAL

Write for the name of the Gohi Distributor near you

THE NEWPORT ROLLING MILL COMPANY . . . NEWPORT, KY.

VOLUME 102 AMERICAN ARTISAN NUMBER 2

WARM AIR HEATING • SHEET METAL CONTRACTING • AIR CONDITIONING

Some Problems of 1933

Association Troubles

The statement has been made that the last two years have been tough periods for associations of all kinds. Membership has dropped off, dues remained unpaid, interest in general has decreased.

Much of this trouble can be laid, undoubtedly, to general business conditions. However, any person willing to face the facts will recognize that an association has only two things to offer—first, agreeable associations, and second—real aims which make themselves known in black figures on the ledger.

Unquestionably associations have made an excellent reputation for agreeable associations. We all like to get together, have a good time, and see and hear the other fellows in our industry.

The second requisite for association success, however, is far more difficult to obtain. It is no easy task in the best of times to keep individuals lined up behind a program; neither is it easy to make members toe the mark so that the entire group may advance and profit by the work of the organization.

In times of poor business this difficulty becomes practically insurmountable. Every member demands all the work he can get at the lowest price he can quote. "Let the other fellow look out for himself," is the password.

We have in our industry excellent examples of associations so valuable that members can't afford to drop out. There is one association which audits the books and instructs the various firms in bookkeeping; shows members where they are losing money.

There is another association which has set up by an arrangement with general contractors, architects and bankers a credit service whereby only firms with good credit may start in business, bid on jobs or operate in their territory. Credit control is their reason for existence.

These specific operations can be only local, or at the most statewide, in their scope. The really big problems such as bid peddling, national control of credit, compensation, legislation, labor disputes, relationships with other crafts can best be handled by larger groups with a more impressive background, in short—national organizations.

Seemingly, the whole association idea is on test. Men haven't as much money as formerly, or no money at all, and a dollar today looks as big as twenty-five did five years ago. Perhaps we will have to reorganize associations so that every interested person can belong without dues. Local organizations, in general, are in a sorry state of decay. They need new programs to keep members interested. State associations need overhauling and must dig up really sound reasons why contractors should belong and pay dues. If we can revive local and state organizations, the need for national organizations to handle the big problems will become apparent, but until the smaller associations get active the whole association idea must suffer.

Action Is Needed

In November, 1931, we proposed a plan whereby air conditioning as we know it in the domestic field could be classified according to the **degrees of air conditioning** which might be obtained by any particular collection of apparatus.

Since that proposal was advanced, the same suggestion has been made in slightly different forms by numerous publications, persons and organizations.

Our original suggestion, and all the following suggestions, aim to do one thing—protect the buyer and the contractor.

Such a plan will protect the buyer because he can readily check any system offered against this schedule and see immediately just what he may expect to get.

The contractor will be protected because the system he is advocating can be checked against competition and exaggerated claims or over-statements singled out at a glance.

This plan will also help today's manufacturers in their unquestioned fight of tomorrow with manufacturers of all kinds of gadgets who will soon appear to claim a share of this business.

It is probable that every one in the industry recognizes the need for a plan of this kind. What we need now is some action. The logical place for such action to start is with the manufacturer—especially the manufacturer of such accessories as blowers, controls, washers, fans, filters—because it is easier for the manufacturers to get together on this program than for thousands of contractors to assemble.

We expect air conditioning to advance rapidly during the next two years. The faster conditioning goes ahead the more pressing will be the need for some sort of mutual protection of this sort. Now, while we are all waiting for the rush to start, is the best time to get the details of the plan worked out and approved by the entire industry.

The Roosevelt main shop and display room with the "Iron Man" in front

Advertising—Of All Kinds—Trebles This Contractor's Business

By R. C. Nason

ONE of the rapidly growing sheet metal and roofing contracting businesses on Long Island is that of the Roosevelt Roofing & Sheet Metal Works, 69-18 Roosevelt Avenue, Woodside, whose business was trebled three years ago following the change in location from a cellar shop to the chief artery of the city.

By actual count some 1,500 persons pass the doors of this contractor daily and although the new address meant doubling the rent the increase in trade volume and profit that followed made the change well worth while. According to the president of the company, "Cellar locations are dear at any price."

In addition to location it is felt by the officers of the company that advertising has exerted the greatest force in bringing prosperity in the roofing, skylight and sheet metal contracts that comprise the bulk of the business of the Roosevelt concern. In round figures $500 annually is devoted to publicity.

Form letters, blotters, mailing folders are regularly sent to a selected list of old customers and sterling prospects. But billboards and the 10-foot figure of sheet steel that guards the main entrance of the Woodside office have proved of the greatest value. The unique appearance of the old fellow cannot accurately be portrayed by illustration. He is far better in the flesh than he looks on paper.

As "Mike," as the neighbors jokingly refer to "The Iron Man," retains his metallic dignity on the sidewalk few of the thousands who pass fail to stop and smile at him. Cane in hand and arm upraised, the old man presents a heroic figure indeed. No wonder the Roosevelt Roofing & Sheet Metal Works spent plenty of good money to get the trade mark registered.

This advertisement appears in the classified telephone directory. Note how the trade mark is used for identification

No piece of advertising matter that goes out under the company name is without a reproduction of "The Iron Man." The billboards, of which the company has six, all show him 12 feet tall. Even the visiting cards used by the company's sales representatives have a picture of "Mike."

The contractors use plenty of newspaper space, have their name four times in the Queens County Classified Telephone Directory and find "it pays to advertise." Perhaps the most attention-getting piece of mailed publicity, however, is that known as the "square" puzzle, 20,000 of which have been handed out door to door by high school students.

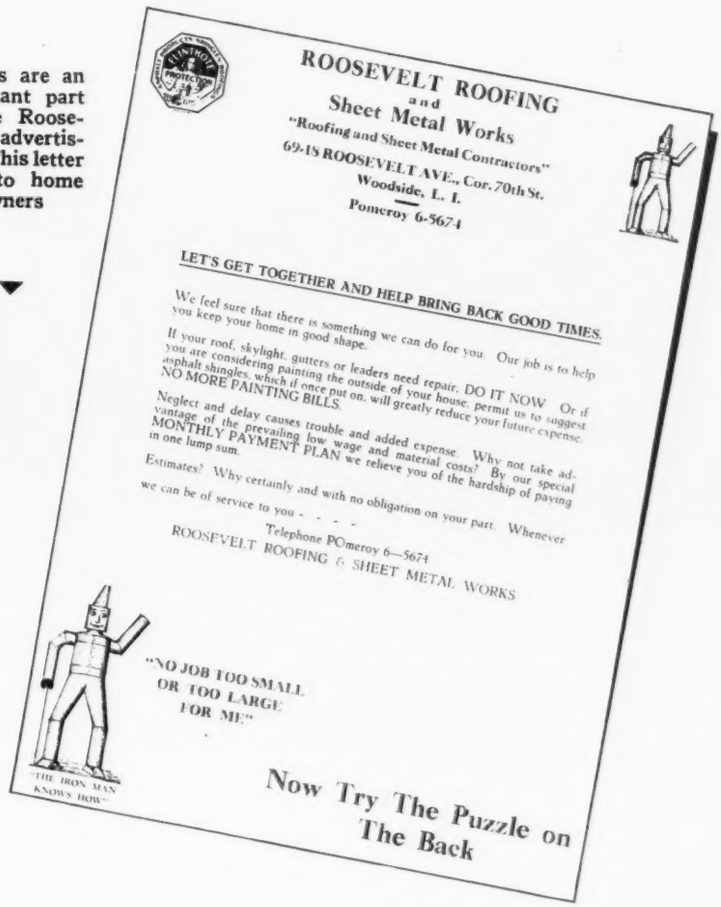
On the outside of the envelope containing the puzzle appears "The

Iron Man," as usual, and the words, "If U Can Figure This Out U R Good." Within is a bulletin headed, "Try this One—An Unusual Puzzle." It then is explained that the 10 pieces of galvanized steel found in a small brown envelope enclosed if placed together accurately form a solid square of the size and shape diagrammed on the bulletin. The reverse side carries a selling message urging readers to have their roofing and sheet metal work done now while prices are low and, of course, done by the Roosevelt Roofing & Sheet Metal Works.

Another effective mailing piece sent out is that addressed "To the Home Owner" wherein roofing is stressed. Beneath the "Iron Man" in this case one reads, "The Iron Man Knows How," which is a slogan used rather regularly in connection with pictures of the trade mark.

In addition to considerable roofing and miscellaneous sheet metal work, skylights for the trade form

Letters are an important part of the Roosevelt advertising. This letter goes to home owners



ROOSEVELT ROOFING
and
Sheet Metal Works
"Roofing and Sheet Metal Contractors"
69-15 ROOSEVELT AVE., Cor. 70th St.
Woodside, L. I.
Pomeroy 6-5674

LET'S GET TOGETHER AND HELP BRING BACK GOOD TIMES.

We feel sure that there is something we can do for you. Our job is to help you keep your home in good shape.

If your roof, skylight, gutters or leaders need repair, DO IT NOW. Or if you are considering painting the outside of your house, permit us to suggest asphalt shingles, which if once put on, will greatly reduce your future expense. NO MORE PAINTING BILLS.

Neglect and delay causes trouble and added expense. Why not take advantage of the prevailing low wage and material costs? By our special MONTHLY PAYMENT PLAN we relieve you of the hardship of paying in one lump sum.

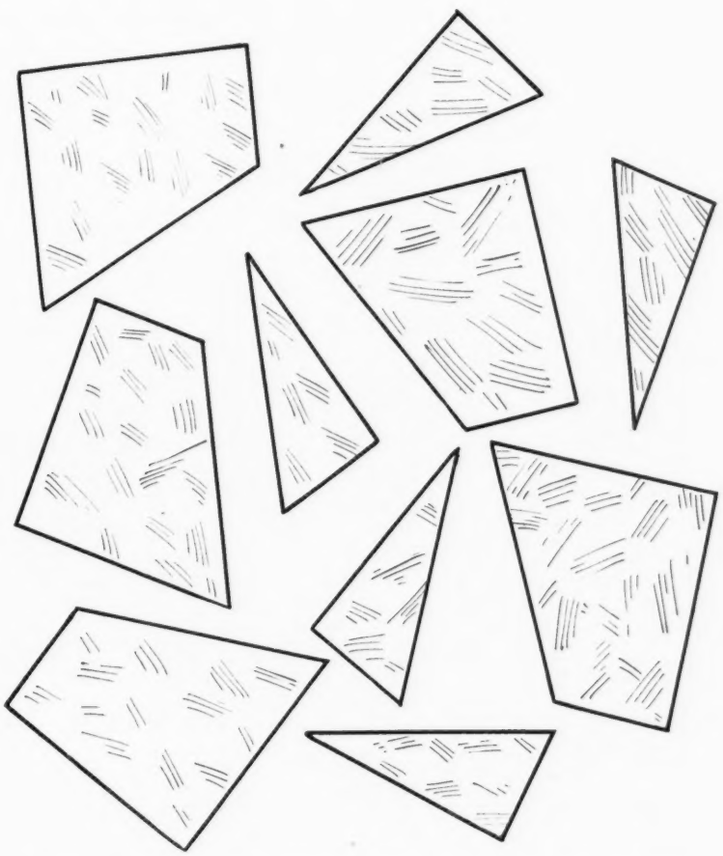
Estimates? Why certainly and with no obligation on your part. Whenever we can be of service to you - - - -

Telephone POmeroy 6—5674
ROOSEVELT ROOFING & SHEET METAL WORKS

"THE IRON MAN KNOWS HOW"

"NO JOB TOO SMALL OR TOO LARGE FOR ME."

Now Try The Puzzle on The Back



The puzzle mentioned in the story consists of ten pieces of galvanized iron cut out like this. Some 20,000 persons have received this puzzle and attempted to make a perfect square from the ten pieces

a considerable portion of the company's activities. Repairs and alterations are prime business, new work an abomination because of the merciless price cutting and backward collections that are found to accompany such work at this time. One of the popular slogans used in their advertising is, "Skylights Our Meat."

Bad credit is religiously avoided and the contractors feel they have a solution in the use of commercial finance companies. When would-be customers are known to be slow payers they are asked to sign a commercial financing contract. Under this arrangement not less than 10 per cent of the proposal is paid at the start of the work, the balance being paid monthly to the finance company.

On small amounts, say, in the neighborhood of $100, the customary down payment is $25.00 and the balance can be paid over a period of 10 months. In contracts of $1,000 the customer has 22 months

ROOSEVELT ROOFING
and
Sheet Metal Works
69-18 ROOSEVELT AVENUE - Cor. 70th St.
Woodside, L. I.
Pomeroy 5674

Dear Houseowner:-

ARE YOU IN NEED OF A TINSMITH or ROOFER, if so GET ACQUAINTED WITH YOUR NEIGHBORHOOD SHOP!

We have opened an up-to-the-minute Roofing and Sheet Metal Shop, equipped to do both large and small jobs, repairing or replacing of your Gutters, Leaders, Cornices, Shingles, Ice Boxes, in fact anything that needs repairing in this line is our specialty.

Courteous and intelligent information and estimates are a free service to you. We are here to make and keep friends, hence we WILL NOT ESTIMATE ON A JOB THAT WE CANNOT GUARANTEE.

"NOW is the time to carefully look over your house and get it in shape before the Winter months set in" Just give us a ring and we will be only too glad to attend to your wants.

Your Neighborhood Tinsmith and Roofer,

ROOSEVELT ROOFING and SHEET METAL WORKS

The letter above introduced the branch store opened for the convenience of householders too far from the main office. Notice the number of services itemized

ROOSEVELT ROOFING
and
Sheet Metal Works
"Roofing and Sheet Metal Contractors"
69-18 ROOSEVELT AVE., Cor. 70th St.
Woodside, L. I.
Pomeroy 5674

We have an up-to-the-minute Roofing and Sheet Metal Shop, equipped to do both large and small jobs, repairing and replacing of skylights, cornices, gutters, leaders, corrugated iron, metal ceilings, fireproofing, ventilation, etc.,

Roofing and re-roofing. Repair work a specialty.

Also all kinds of repairing and violations removed.

We specialize to the trade.

All our work is guaranteed. Estimates and information are a free service to you.

Just give us a ring and we will be only too glad to attend to your wants.

Very truly yours,

Roosevelt Roofing & Sheet Metal Works.

The letter above has had wide circulation. It has been sent to owners, industrialists and also to the trade. The letter has been sent from both the main and branch offices

in which to pay and in larger amounts 24 months terms can be arranged.

The good points of this financing plan, declares the company, are that they receive their profit as soon as work is started on the contract, they can pay their wholesalers promptly, can keep their assets liquid, are relieved of credit and collection worries, thus devoting their entire time to promotion and operation.

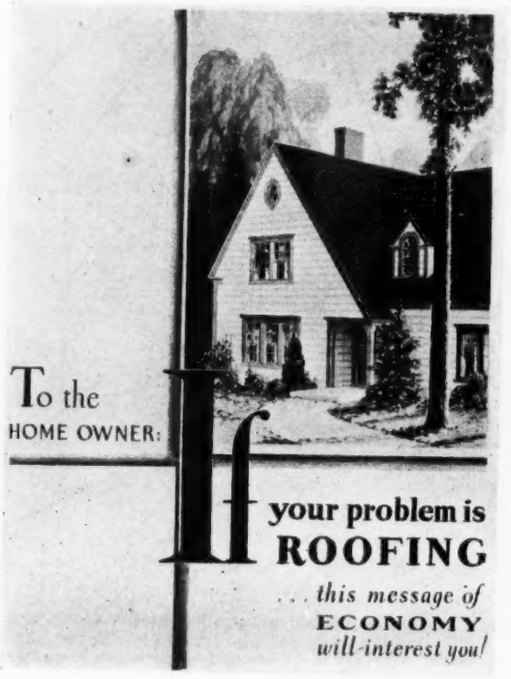
So satisfactory has the Roosevelt Roofing & Sheet Metal Works business developed that within the past year a branch office was opened in Astoria, L. I., a few miles nearer New York City. The shop at that address serves as a warehouse and plant, whereas the Woodside store is used more as a business office and display room.

Three salesmen recently have augmented the business-getting end of the organization. They work entirely on a commission basis and are found quite valuable in unearthing live prospects. One of these men can estimate and the others find new purchasers, then have an estimator of the company visit the location and make the quotation. The salesmen in this instance receive their commission just the same.

▲

This is the cover of a four-page colored leaflet discussing roofing in detail. The leaflet is 8½ by 11 inches in size and was mailed folded twice. The inside pages are illustrated with before and after roofing photographs and explains the Roosevelt roofing service in complete detail

▼



A Sheet Lead Floor

ATOP the new African Hall of the American Museum of Natural History in New York is a large and newly constructed greenhouse. Naturally the erection of this structure presented a most exacting waterproofing problem because the large amounts of water necessarily used in a greenhouse must be kept from penetrating to the interior of the building below, where moisture would ruin walls and ceilings. Just as the far-famed hanging gardens of Babylon thousands of years ago were completely lined with sheet lead to retain moisture, so this modern hanging garden is waterproofed with sheet lead because of its great durability and resistance to attack by water.

Although this particular job may be considered somewhat unusual because of the use to which it is put, it should be of interest because exactly the same method of installation should be used for any roof garden or conservatory.

The roof greenhouse consists of three rooms, a cool aquatic compartment, a warm aquatic compartment, and a warm dry compartment. Each room measures 42 feet by 17 feet 9 inches, making the total floor space lined with lead 42 feet by 53 feet 11¾ inches. The lead pan is made of sheets of lead weighing 8 pounds to the square foot, which is ⅛ inch thick. All seams are "burned" or welded, and the lead is turned up all walls approximately 1½ feet.

The lead pan rests on a concrete sub-floor with a finished cement floor on top of the lead. Two drains are symmetrically located in each room, the floors sloping to these drains. The lead pan is soldered to the drains just below weep holes provided to conduct any moisture collecting on the lead into the drains. Essentially the installation is the same as for shower stalls.

As is always the case when lead is in contact with cement containing free lime, it is advisable to give the metal a good coating of asphaltum or coal tar paint. In this particular installation such a coating was not applied for it was feared that the coating would give off fumes harmful to plant growth. This would be true especially where the coating was placed around warm service pipes which necessarily penetrate the floor, but even at low temperatures fumes were feared. However, whenever possible, a coating should be applied.

On top of the cement floor 10 inches of peat is packed.

Trowbridge and Livingston were the architects for the new building, Moran Engineering Co., the plumbing contractors, while the actual installation of the large lead pan and all the lead burning was performed by John F. Abernethy & Company.

The photograph shows the lead floor in one of the rooms before the peat was placed. The sheets are ⅛ inch thick and all seams were burned. The photograph above shows a typical seam

Did you ever

list the number of metals in which you work?

list the number of operations you are prepared to perform?

It's very impressive when you do — and it will certainly be impressive to your prospective customer. We made these things the basis of this little campaign.

For Business from Industry

ONE HUNDRED AND TWENTY MILLION people want a return to some measure of prosperity—and when that many people desire something, as they desire this, it can not be withheld indefinitely. No one cares, any longer, to put a date on the return of prosperity which will, as a matter of fact, come back in spots. We have pointed out, in the advertising copy which accompanies this article, the fact that no one knows just what industry will next feel the piled up demand of our population.

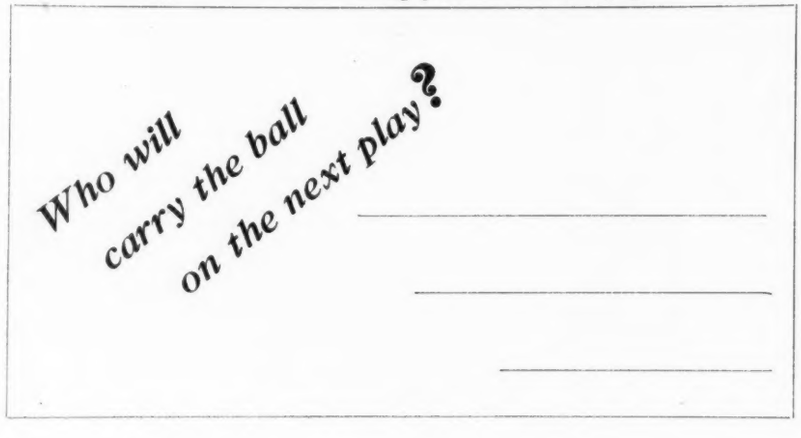
It is probable that, six months ago, no one in the textile industry would have given a five-cent piece for the chances of an upward trend in their field. It arrived with a bang. Textiles, along with shoes, experienced the accumulated demand for these products. And that may likely be the way general prosperity will return—first one industry, and then another, will find itself under the necessity of working at an accelerated pace in order to supply demand which has been kept back until the necessity for one type of product or another forces the placing of orders.

From the viewpoint of the contractor, it is essential that he be in touch with the industries in his community so that, when those industries feel the results of demand in their particular field, he will be "out in front," and in line to be called upon for the sheet metal work that may be necessary.

An Opportunity Being Created

At the same time, there is a plant rehabilitation movement sweeping over the country. It has been highly organized, and amounts ranging from a hundred thousand dollars to six million dollars have been set aside in various communities by manufacturing plants for the purpose of putting plant equipment in shape. It is apparent, from the type of men who are at the head of the movement, that no manufacturing plant in the country is going to be left in ignorance about this rehabilitation movement. Prominent men are being interested in the job of bringing the matter to the atten-

The outside of the mailing piece on the next page



Business is in a Huddle!

. . . and no one knows which industry will carry the ball on the next play . . .

After a long period of the doldrums, the textile industry suddenly took a sprint recently, due to piled-up delayed demands. What industry will be next? No one knows—and the safest course is for each unit of each industry to be ready to respond efficiently. It is only a matter of time—and that time may be short—when manufacturing equipment will be called upon to meet sudden demand in any industry. We strongly recommend the doing of such work as may be needed now.

These are the metals in which we work . . .

Tin
Galvanized Iron
Copper
Lead-coated Copper
Aluminum
Zinc
Monel Metal, and all kinds of alloy steels
Lead

Also heavy plate for heavy jobs, such as boiler breechings, etc.

What a competent sheet metal man and his organization can do for any manufacturing plant

Such an organization can meet the demands common to almost every industry for machine guards, oil drip trays, shaving boxes, "keep the plant clean" boxes, conveyor boxes, stock boxes. It can set up or repair collecting systems of all kinds, piping systems, replace or repair hoods and tanks, do the necessary soldering or patching operations. In addition it will meet your special needs by fabricating—in any of the metals mentioned above—such things as are required in one phase or another of your work. We have the necessary equipment, the experience and the skilled workmen to take care of anything from the simplest to the most difficult fabricating job.

You will want to talk over such work. If you will telephone, a member of the firm will call at your convenience to go over your plant needs with you.

These are the operations for which we are equipped . . .

Forming
Cutting
Punching
Shearing
Welding
Soldering
Patching
Repairing

PHONE 0000

ENTERPRISE SHEET METAL WORKS
111 Main Street **CITY**

Here is copy for a circular, which may be mailed, or used as a handbill. It is aimed at making fresh contacts with the industrial plants in your community

tion of manufacturers in their communities.

Bearing these facts in mind, we offer our readers herewith some suggestions for several approaches to local manufacturers. There is copy for a circular, and copy for two sales letters. Working on the belief that few people are aware of the actual extent of the services offered by the sheet metal contractor, we have undertaken to list not only the materials with which he works, but also the main operations he is prepared to undertake. We believe that the listing of these two sets of facts, as they appear in the circular and in the letters, will be impressive to those receiving them.

The purpose of the copy is to secure an opportunity to inspect the plant in order to discover such sheet metal work as may be necessary; also to take care of the highly important task of keeping the contractor's name before the men who will undertake rehabilitation work in their plants, either as a result of the organized movement spoken of above, or in preparation for an actual resumption of operations on a larger scale.

Your Letterhead

My dear Sir:

When 120,000,000 people want things to get better, they will get better.

Just a few months ago the textile industry was suddenly galvanized into life by a sudden pouring in of orders. Those orders were necessitated by the demand which had been piling up and which, finally, had to be satisfied.

No one knows what industry will be the next to feel that flood of delayed orders. That, probably, is the way recovery will come back--first single industries, then related groups, will feel the orders placed to fill needs that have been going unsatisfied. And as the tide grows, employment will mount, and further orders eventuate.

With this true, we are urging manufacturing firms in this community to complete the job of preparedness, making use of our service in connection with metal work needed around the plant. We work in tin, galvanized iron, copper, lead-coated copper, aluminum, zinc, monel metal and other alloy steels, lead, and in the heavy plates for heavier jobs, such as boiler breechings, etc.

We offer our services in connection with the fabrication, repair or replacement of machine guards, oil drip trays, shaving boxes, conveyor boxes, stock boxes, collecting systems of all kinds, piping systems, hoods and tanks, etc. We are equipped for forming, cutting, punching, shearing, welding, soldering, patching and repairing.

For general needs, or for special needs in your own plant where sheet metal can be used, we will be glad to talk with you. If you will telephone, a member of the firm will call at your convenience.

Very truly yours,

ENTERPRISE SHEET METAL WORKS

These two letters can be used in connection wth the circular shown on the preceding page. A girl can write them in her spare time

Your Letterhead

My dear Sir:

As you plan in preparation for a growing volume of business, we are desirous of acquainting you with the service we offer:

We work in the following metals: Tin, galvanized iron, copper, lead-coated copper, aluminum, zinc, monel metal and other alloy steels, lead--as well as in the heavy plates needed for such jobs as boiler breechings, etc.

We are equipped for forming, cutting, punching, shearing, welding, soldering, patching and repairing with any of these metals.

In every manufacturing plant there is more or less sheet metal work. If you desire, we shall be glad to have a member of the firm go over your plant with you, to inspect the sheet metal work now installed for needed repairs and replacements, and to consult with you on any further uses of sheet metal which may develop. We offer our services in connection with machine guards, oil drip trays, shavings boxes, conveyor boxes, stock boxes, collecting systems of all kinds, piping systems, hoods, tanks, etc., as well as any special needs involved in your processes of manufacture.

As in every other business, skill and experience count for much, particularly since so much of the sheet metal organization's work involves actual fabrication for specific purposes. What is needed now in so many manufacturing plants is a competent check-up on existing sheet metal work so that, when production is speeded up, there will be no delays due to breakdown.

If you will telephone, we will be glad to arrange for some one to go over your plant with you to inspect the sheet metal work of all kinds.

Very truly yours,

ENTERPRISE SHEET METAL WORKS

The circular may be printed on any standard size sheet. Assuming that a sheet of letterhead size is selected (8½ x 11) the circular may be printed on one side. Then the circular is folded as if it were going into a No. 10 envelop and on the outer fold where the address is to be written, should be printed the words "Who will carry the ball next?" as shown in the article. If it is to be mailed separately, it should be printed on a fairly heavy paper. At the same time, it can be printed on bond paper and used as an enclosure with one of the sales letters, or as an envelop stuffer with material going to local plants.

This is a good time to organize a drive to have plants put in shape for efficient production.

Lets Figure A Job

By Platte Overton

Using The New Tentative Code For Forced Air Heating

THE new Tentative Code for the Installation of Mechanical Warm Air Furnace Heating Systems in homes, was published in the September issue of AMERICAN ARTISAN. To study the development of the various items in the following paragraphs the reader should obtain this September issue as it will be referred to from time to time.

The preparation of the data sheet is our first consideration. The house for which we will design the system is shown in Fig. 1 and Fig. 2. The data sheet is shown in Fig. 3 with items 1 to 37 inclusive. Items 1-2-3 are room dimensions, cubic feet of space, and floor area. These items have been filled out as noted.

Under Article 2, Section 1, we find, (a) "Divide square feet of exposed glass surface by 12." (b) Divide square feet of net exposed wall surface, cold ceiling or cold floor, by factor in Table A of Standard (Gravity) Code. Part of this table is reproduced here.

TABLE A

Exposed Wall		Factors
No. 1—(a)	Frame Wall constructed of siding, paper, sheathing, studding, lath and plaster.....	60
(b)	Same (1-a) construction substituting ½" fibrous board or equivalent for the lath.....	80
(c)	Same (1-a) construction with additional 3½" insulating fill between studding	140

For stucco on frame walls, use the same values as for frame with siding, as shown in 1-(a), 1-(b) and 1-(c).

Our construction for the walls of the house is frame; siding, sheathing, studding, ½" Celotex insulation, lath and plaster. In Table A under (b) we find that the factor is 80 and we place this on the data sheet under item 7 for future use.

Our window factor in the new code is given as 12 and is placed on the data sheet under item 6. The ceilings have Celotex insulation between ceiling joists, but no attic flooring and on Table A under ceilings (b) we find the factor 70. Note that on the floor plans some ceiling area is to be figured for the Living Room and Dining Room on the first floor.

Ceilings—With Attic Space Above

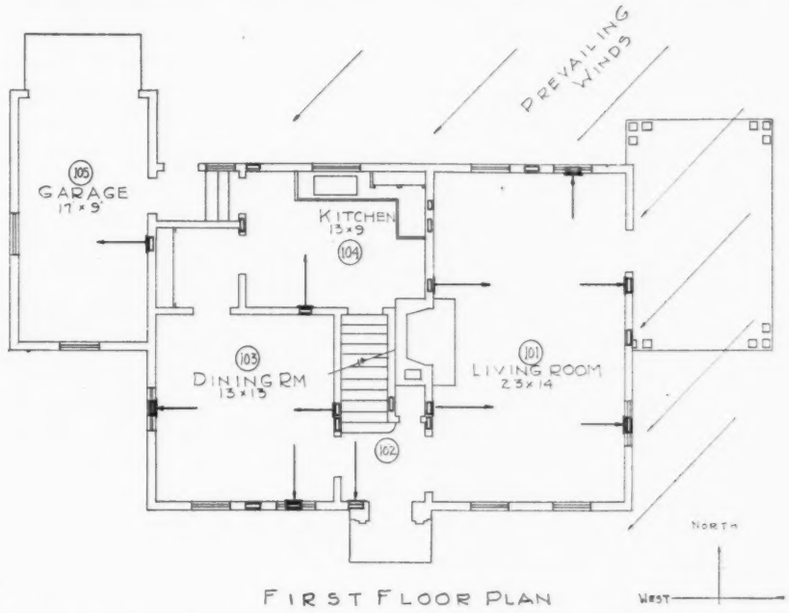
No. 10—(a)	Lath and plaster without floor above	50
(b)	Same (10-a) construction substituting ½" fibrous board or equivalent for the lath.....	70
(c)	Same (10-a) construction with additional ½" fibrous board or equivalent nailed on top of joists	90
(d)	Same (10-a) construction with additional 3½" insulating fill between joists	150

Our only floor loss will be in the garage and as concrete floors are not listed under Table A we will use the factor 20. Item 8 is cubic feet of space factor and is covered in the new code in Article 2, Section 1 under (c). For all rooms with one side exposed we divide the cubical contents by 800. Those with two sides exposed, we divide by 600 and those with 3 sides exposed we divide the cubical contents by 400. (See note 3 in the new code). The Living Room, two Bed Rooms, and Garage come under this factor of 400.

Table 1

Register air temp.	Factor
150	10.9
145	11.6
140	12.3
135	13.2
130	14.2
125	15.4
120	16.8

Item 9 is arbitrarily chosen from Table 1; 130 to 140 degrees inlet temperature at the register being good practice for residence work. We chose 140 and our factor is 12.3. The air supply in cubic feet per minute (c. f. m.), item 25, is



Above is the floor plan of a typical forced air heated house. This article explains how to calculate the system by using the new code

N 15 %
NW 15 % NE 15 %
W ___ % E 15 %
SW ___ % SE ___ %
S ___ %

Exposure Factors

Based on 0 °F. Cold Weather & Prevailing Winds From North East

Bldg. Date

Location

Archt. Engr.

Rooms No	101	102	103	104	105	201	202	203	Totals
Use	Living Rm.	Hall	Dining Rm.	Kitchen	Garage	Bed Rm.	Bed Rm.	Bath	
MEASUREMENTS 1. Room Dimensions	23'×14' ×8'-6"	6'×13' ×8'-6"	13'×13' ×8'-6"	13'×9' ×8'-6"	17'×9' ×10'	18'×14' ×8'	18'×14' ×8'	7'5' ×8'	
2. Cubic Feet Space	2737	663	1437	994	1530	1224	1224	280	10089
3. Room Floor Area	322	78	169	117	153	252	252	35	
4. Floor Factor					20				
5. Ceiling Factor	70	70	70	70	70	70	70	70	
6. Window Factor	12	12	12	12	12	12	12	12	
7. Wall Factor	80	80	80	80	80	80	80	80	
8. Cubic Feet Space Factor	400	800	600	800	400	400	400	800	
9. Air Supply Inlet Temp & Factor	140-12.3	140-12.3	140-12.3	140-12.3	140-12.3	140-12.3	140-12.3	140-12.3	
10. Expd. Wall Gross Area	433	51	221	140	355	246	246	56	
11. Expd. Window Gross Area	84	24	38	10	90	34	34	11	
12. Expd. Wall Net Area	349	27	183	130	305	212	212	45	
13. Exposure Direction	N.E.	S.	S.W.	N.	N.W.	N.E	S.W.	N.	
14. Room Temperature	70°	70°	70°	70°	45°	70°	70°	70°	
Basic Factor for Each Room									
15. Floor Divide square feet by factor					7.65				
16. Ceiling " " " " "	.685	1.11	.57		2.18	3.6	3.6	.5	
17. Window " " " " "	7.	2.	3.17	.83	7.5	2.8	2.8	.92	
18. Wall " " " " "	4.35	.33	2.28	1.62	3.82	2.65	2.65	.56	
19. Divide cubic contents of room by factor	6.8	.83	2.4	1.24	3.82	3.	3.	.35	
20. Subtotal	18.835	4.27	8.42	3.69	24.97	12.05	12.05	2.33	
21. Exposure allow.	2.82			.55	3.74	1.8	1.8	.349	
22 Subtotal	21.655	4.27	8.42	4.24	28.71	13.85	13.85	2.679	
23. add or deduct 1.5% per degree above or below 70°					10.77				
24 Total room basic factor	21.655	4.27	8.42	4.24	17.94	13.85	13.85	2.679	86.90
25 Air Supply C. F. M. multiply the room basic factor by that factor in Table 1 representing register air temperature	286.4	52.52	103.56	52.2	222	170	170	33	1090

26. Number of inlets	3	1	1	1	1	2	2	1	
27. Number of returns	3	1	2			2	2		
28 Size of supply stack	12×3½		10×3½			8×3½ 10×3½	8×3½ 10×3½	8×3½	
29. Size of return stack									
30. Velocity based on Table 2 & Factor	500-	500	500-	500-	500-	500-	500-	500-	
31. Size round pipe supply	7"	4½"	6.2"	4½"	9"	5.7"	5.7"	4"	
32. Size equiv. rectangular									
33. Size round pipe return	6"	6"	6"			6"	6"		
34. Size equiv. rectangular									
35. Location of W.A. Reg.	6'-6" up	B.B.	6'-6" up	B.B.	B.B.	B.B.	B.B.	B.B.	
36. Size W. A. Reg.	12×5	8×4	10×4½	8×4	12×5	8×7 10×6	8×7 10×6	8×4	
37. Size Return Air Reg	10×6	10×6	10×6						

A data sheet of this kind is highly important. When it is completely filled in you know that every contingency has been provided for. This data sheet also keeps all the necessary information together

obtained by multiplying the room basic factor (item 24) by the factor from Table 1; in our case 12.3. Item 10. We measure the gross exposed wall area. Item 11 is exposed window and door area, and item 12 is item 10 minus item 11 and leaves us the total net exposed wall for item 12. Item 13 is exposure direction and item 14 is room temperature.

For item 15 we refer back to Article 2, Section 1 and observe that we divide the net square feet of exposed surfaces by the factors given under Table A and as already listed in items 4-5-6-7 and 8 on the data sheet. As we have no floor loss for room 101, our next item is ceiling. We have 48 square feet of exposed ceiling in this room hence 48 divided by 70 equals 0.685 for item 16. Our gross window and door area for item 11 is 84 square feet and our factor in item 6 is 12. Hence 84 divided by 12 equals 7 for item 17.

Our wall in item 12 equals 349 square feet, divided by the factor 80 from item 7 equals 4.35 for item 18. For item 19 we divide the cubical contents in item 2 by the factor in item 8, and in our case for room 101, we have 2737 divided by 400 equals 6.8.

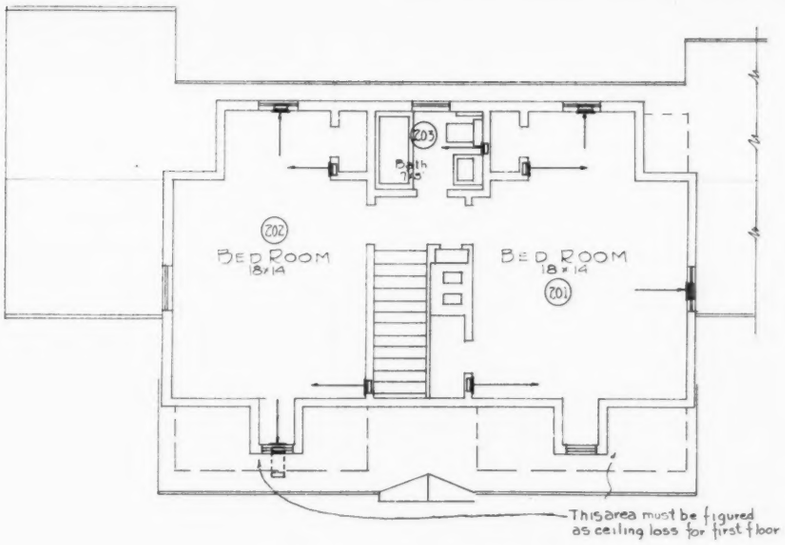
For item 20 we add the basic factors in 15-16-17-18 and 19 and our answer for room 101 equals 18.835 and is a sub-total.

Under Article 2, Section 1 of the tentative code we find under (c) that for unusual exposures we add 15% to the sum of the quotients (item 20), thus for item 21 room 101, we have 15% of 18.835 equals 2.82.

For item 22 we add item 20 to item 21 for another subtotal, of 18.835 plus 2.82 equal 21.655.

Under Article 2, Section 1 (c) we note that the applied rules are for 70 degrees inside temperature at zero degrees outside, and for any temperature range above or below this 70 degree variation we must add or deduct 1.5% per degree difference. As our data sheet is based on zero degrees to 70 degrees for this room we leave this item open. However, note that in the case of the garage room 105 with 45 degrees inside temperature we would deduct; $1.5 \times (70 - 45) = 37.5\%$ from the total of item 22.

Item 24 is item 22 plus or minus item 23 as the case may be. Plus



SECOND FLOOR PLAN

The second floor plan shows register and grille locations based in prevailing wind direction

for cases of higher temperature differential than 70 degrees, and minus for a lower differential.

Item 25 is item 24 times the factor in item 9, and in our case is 12.3. Hence 12.3 times 21.655 equals 286.4 and is cubic feet per minute (c. f. m.).

Our next step is to locate the warm air and return air registers and grilles and these are shown on the floor plans in Fig. 1 and Fig. 2.

TABLE 2

Air velocity	Register air temperature, degrees Fahr. (return air temperature being 65 degrees Fahr.)						
f. p. m.	120	125	130	135	140	145	150
200	12.1	11.1	10.2	9.5	8.9	8.3	7.8
250	9.7	8.9	8.2	7.6	7.1	6.7	6.3
300	8.1	7.4	6.8	6.3	5.9	5.6	5.2
350	6.9	6.4	5.9	5.4	5.1	4.8	4.5
400	6.1	5.6	5.1	4.8	4.4	4.2	3.9
500	4.9	4.4	4.1	3.8	3.6	3.3	3.1
600	4.0	3.7	3.4	3.2	3.0	2.8	2.6
700	3.5	3.2	2.9	2.7	2.5	2.4	2.2
800	3.0	2.8	2.6	2.4	2.2	2.1	2.0
900	2.7	2.5	2.3	2.1	2.0	1.9	1.7
1000	2.4	2.2	2.1	1.9	1.8	1.7	1.6

We are now ready to size the warm air pipes and trunk ducts. Article 2, Section 3 (a) of the tentative code states "The cross sectional area of a round individual warm air duct in square inches for a given room shall be obtained by multiplying the room basic factor (item 24) by the factor in Table 2 representing the desired air velocity."

Our Living room will have two warm air inlets or registers hence our basic factor for one run is 21.655 divided by 2 equals 10.827. At 140 degrees register temperature and an air velocity of 500 feet per minute, we refer to Table 2 and find that our factor is 3.6. Hence 10.827 times 3.6 equals 39.977 or 40 approximately. This 40 represents square inches of pipe area in cross section.

We now refer to Table 3 and find that 40 square inches is equivalent to a round pipe 7 inches in diameter approximately. Thus we have two 7-inch pipes for room 101 and we so note it on the data sheet under item 31.

As our registers in this room will be 6'-6" up from the floor and will require a stack, we refer to Table 4 and find that a 7-inch pipe is equivalent to a rectangular pipe $12 \times 3\frac{1}{2}$ approximately and this

(*Continued on page 20*)

TABLE 3

CROSS SECTIONAL AREAS OF ROUND PIPES

Diam.	Area	Diam.	Area	Diam.	Area	Diam.	Area	Diam.	Area	Diam.	Area
4.0	12.6	9.0	63.6	14.0	153.9	19.0	283.5	24.0	452.4	29.0	660.1
4.1	13.2	9.1	65.0	14.1	156.1	19.1	286.5	24.1	456.2	29.1	665.1
4.2	13.9	9.2	66.5	14.2	158.4	19.2	289.5	24.2	460.0	29.2	669.7
4.3	14.5	9.3	67.9	14.3	160.6	19.3	292.6	24.3	463.8	29.3	674.3
4.4	15.2	9.4	69.4	14.4	162.9	19.4	295.6	24.4	467.6	29.4	678.9
4.5	15.9	9.5	70.9	14.5	165.1	19.5	298.6	24.5	471.4	29.5	683.5
4.6	16.6	9.6	72.4	14.6	167.4	19.6	301.7	24.6	475.3	29.6	688.1
4.7	17.3	9.7	73.9	14.7	169.7	19.7	304.8	24.7	479.2	29.7	692.8
4.8	18.1	9.8	75.4	14.8	172.0	19.8	307.9	24.8	483.1	29.8	697.5
4.9	18.9	9.9	77.0	14.9	174.4	19.9	311.0	24.9	487.0	29.9	702.2
5.0	19.6	10.0	78.5	15.0	176.7	20.0	314.2	25.0	490.9	30.0	706.9
5.1	20.4	10.1	80.1	15.1	179.1	20.1	317.3	25.1	494.8	30.1	711.6
5.2	21.2	10.2	81.7	15.2	181.5	20.2	320.5	25.2	498.8	30.2	716.3
5.3	22.1	10.3	83.3	15.3	183.9	20.3	323.7	25.3	502.7	30.3	721.1
5.4	22.9	10.4	84.9	15.4	186.3	20.4	326.9	25.4	506.7	30.4	725.8
5.5	23.8	10.5	86.6	15.5	188.7	20.5	330.1	25.5	510.7	30.5	730.6
5.6	24.6	10.6	88.2	15.6	191.1	20.6	333.3	25.6	514.7	30.6	735.4
5.7	25.5	10.7	89.9	15.7	193.6	20.7	336.5	25.7	518.7	30.7	740.2
5.8	26.4	10.8	91.6	15.8	196.1	20.8	339.8	25.8	522.8	30.8	745.1
5.9	27.3	10.9	93.3	15.9	198.6	20.9	343.1	25.9	526.9	30.9	749.9
6.0	28.3	11.0	95.0	16.0	201.1	21.0	346.4	26.0	530.9	31.0	754.8
6.1	29.2	11.1	96.8	16.1	203.6	21.1	349.7	26.1	535.0	31.1	759.6
6.2	30.2	11.2	98.5	16.2	206.1	21.2	353.0	26.2	539.1	31.2	764.5
6.3	31.2	11.3	100.3	16.3	208.7	21.3	356.3	26.3	543.3	31.3	769.4
6.4	32.2	11.4	102.1	16.4	211.2	21.4	359.7	26.4	547.4	31.4	774.4
6.5	33.2	11.5	103.9	16.5	213.8	21.5	363.1	26.5	551.5	31.5	779.3
6.6	34.2	11.6	105.7	16.6	216.4	21.6	366.4	26.6	555.7	31.6	784.3
6.7	35.3	11.7	107.5	16.7	219.0	21.7	369.8	26.7	559.9	31.7	789.2
6.8	36.3	11.8	109.4	16.8	221.7	21.8	373.3	26.8	564.1	31.8	794.2
6.9	37.4	11.9	111.2	16.9	224.3	21.9	376.7	26.9	568.3	31.9	799.2
7.0	38.5	12.0	113.1	17.0	227.0	22.0	380.1	27.0	572.6	32.0	804.3
7.1	39.6	12.1	115.0	17.1	229.7	22.1	383.6	27.1	576.8	32.1	809.3
7.2	40.7	12.2	116.9	17.2	232.4	22.2	387.1	27.2	581.1	32.2	814.3
7.3	41.9	12.3	118.8	17.3	235.1	22.3	390.6	27.3	585.3	32.3	819.4
7.4	43.0	12.4	120.8	17.4	237.8	22.4	394.1	27.4	589.6	32.4	824.5
7.5	44.2	12.5	122.7	17.5	240.5	22.5	397.6	27.5	594.0	32.5	829.6
7.6	45.4	12.6	124.7	17.6	243.3	22.6	401.2	27.6	598.3	32.6	834.7
7.7	46.6	12.7	126.7	17.7	246.1	22.7	404.7	27.7	602.6	32.7	839.8
7.8	47.8	12.8	128.7	17.8	248.8	22.8	408.3	27.8	607.0	32.8	845.0
7.9	49.0	12.9	130.7	17.9	251.6	22.9	411.9	27.9	611.4	32.9	850.1
8.0	50.3	13.0	132.7	18.0	254.5	23.0	415.5	28.0	615.8	33.0	855.3
8.1	51.5	13.1	134.8	18.1	257.3	23.1	419.1	28.1	620.2	33.1	860.5
8.2	52.8	13.2	136.8	18.2	260.2	23.2	422.7	28.2	624.6	33.2	865.7
8.3	54.1	13.3	138.9	18.3	263.0	23.3	426.4	28.3	629.0	33.3	870.9
8.4	55.4	13.4	141.0	18.4	265.9	23.4	430.1	28.4	633.5	33.4	876.2
8.5	56.7	13.5	143.1	18.5	268.8	23.5	433.7	28.5	637.9	33.5	881.4
8.6	58.1	13.6	145.3	18.6	271.7	23.6	437.4	28.6	642.4	33.6	886.7
8.7	59.4	13.7	147.4	18.7	274.6	23.7	441.2	28.7	646.9	33.7	892.0
8.8	60.8	13.8	149.6	18.8	277.6	23.8	444.9	28.8	651.4	33.8	897.3
8.9	62.2	13.9	151.7	18.9	280.6	23.9	448.6	28.9	656.0	33.9	902.6

The Joint Conference At Detroit

DESPITE the fact that attendance at this year's joint conference of the National Association of Sheet Metal Contractors, United Roofing Contractors Association and Roofing Contractors Division of the National Slate Association was disappointingly small, every member who attended expressed the opinion that an excellent program had been prepared and that the round table discussions undoubtedly proved both educational and beneficial.

Harry Stanyer, President

The opening meeting of the convention—Wednesday, January 11—was attended jointly by all three associations. Officers of all associations with the exception of Harry Stanyer, President of the Sheet Metal Contractors Association, who was ill, were in attendance and opened the program with brief reviews of the last year's activities. Reports read by the three secretaries showed that the last three years have, generally speaking, been difficult years for association activity with decreasing memberships, delay in payment of dues and general decreased interest and attendance at local, state and national conferences.

W. C. Markle of the sheet metal men reported that dues had fallen off considerably and that small progress had been made in 1932 in liquidating the debt incurred by the publication of the association's book "Standard Practice in Sheet Metal Work." E. M. Pope of the United Roofers reported more money in the treasury than a year ago and considerable interest in association activities and affairs. W. S. Hayes of the slate men reported general slowing down of activity and attendance, but declared there are many indications of better times ahead.

A note of optimism was sounded by George Harms of F. Meyer and Bro. Co., Peoria, Ill., who declared that times are not now as difficult as they were in 1897. "Things are bound to come back," he stated, "and we should not forget that conditions as they are right now cannot last forever. There is as much opportunity for courage, initiative, ability today as ever before and these qualities will pull business men out of present conditions." This declaration was substantiated by J. A. Piper, President of the U. R. C. A., who related some of the difficulties his native state of South Carolina had overcome and compared those conditions with the comparatively simple problems of the three associations.

George I. Ray, past president of the N. A. S. M. C., gave a brief outline of the work under way by the United Construction Industries, an organization composed of all associations operating in the construction field. This association is comparatively new and when finally completed will be an association for associations, in other words a holding company. Its aims and purposes are in general the promotion and encouragement of all legislation, all activities, all propositions which will raise the standing of the construction industry.

W. C. Markle, Secretary

At the afternoon session M. F. Liebermann, Ambridge, Pa., acting in the absence of President Stanyer, opened the business session of the N. A. S. M. C. Reports were sub-

OFFICERS

President—Harry Stanyer, Dallas, Tex.

First V. P.—M. F. Liebermann, Ambridge, Pa.

Second V. P.—George C. Clark, Chicago.

Third V. P.—J. J. Hession, Louisville.

Fourth V. P.—J. O. White, Baltimore.

Treasurer—Jos. C. Gardner, Indianapolis.

Trustees

Andrew Zehner, Kansas City, Mo.
W. E. Fingles, Baltimore.
James Barrett, Alton, Ill.

mitted by various committees, showing advancement or accomplishment during the past year. The secretary's report showed little gain and only a small cash balance on hand at the end of the year. "This," said Mr. Markle, "should not discourage us because we all realize how really difficult money affairs are today."

Perhaps the most important piece of business introduced was the recommendation to change the by-laws of the association to permit financial participation in the association by manufacturers and jobbers serving the field.

These changes are as follows:

Amendments

Article I, Section 1—Add the following paragraph:

Any individual, firm or corporation engaged in the manufacture or jobbing of sheet metal and other products, machinery, tools and equipment used in the industry, shall be eligible to hold a Contributing Membership in this association.

Article I—(Add new section).

Section 5. Contributing Membership. Any individual, firm or corporation eligible under the provisions of Section 1 of this Article may become a Contributing Member on payment of dues as given in Article XII, Section 2.

Article XII—(Add new section).

Section 2. Dues for Contributing Membership shall be paid at the rate of $..... per year, and shall become due and payable to the secretary on the 1st day of January of each year.

The question of what fees shall be paid by these manufacturers and jobbers was left to the board of directors for definite decision.

Following the adoption of these changes in the by-laws, officers for the coming year were nominated. Those elected are shown on page 18.

Thursday morning's session was devoted to general discussion of air conditioning by the sheet metal members while the roofers talked over insulation, waterproofing, asbestos, slate and tile application problems.

The air conditioning discussion was led by E. H. Riesmeyer, chairman of the national warm air furnace committee. In his report, Mr. Riesmeyer said that there are many difficult problems cropping up every day and that these problems must be solved. One of these problems is that of bad competition, notably from ex-mechanics, men out of work from other lines of activity and established contractors who either don't know or who are determined to ruin this coming business through

Jos. C. Gardner, Treasurer

the same old price cutting tactics which brought gravity warm air to such a lowly state a few years ago. As an example he cited a job which sold for $650 in Pittsburgh in which the actual price of material alone was $450.

Another evil emphasized was that of cheap goods, notably the $29.50 and $39.50 furnace, advertised as a catch piece of merchandise and not constructed for long or satisfactory life. Co-operation among contractors, manufacturers and engineers is sadly lacking, the speaker declared. Manufacturers are turning out equipment which they state will condition and contractors are installing systems which they call air conditioning when, as a matter of fact, the system is nothing more than a forced air installation with perhaps some degree of automatic control.

"All agencies interested in the advancement of the industry will have to get behind this situation and iron out the problems and arrive at some basis whereby the legitimate dealer and the public will both be protected from unscrupulous merchants," Mr. Riesmeyer declared.

F. H. Mehrings, Meyer Furnace Co., Peoria, Ill., delivered an address, "What's Ahead in Air Conditioning." Practically all of this address will be published in a later issue.

Jack Stowell, N. A. S. M. C. representative on the Committee of Ten, briefly outlined the work of the committee stressing the publications printed to date. These are the four educational bulletins on "Chimneys and How To Build Them," "Fireplace Construction," "Certified Heating," and "Solid Fuels and Their Use in Hand Fired Plants." The committee has also mailed out six miscellaneous reports covering Steam Generation, Use of Solid Fuel With Summer Cooling, Hand Fired Grates, Trouble Shooting in Small Plants, Stokers in Air Conditioning and Natural Gas vs. Coal. All these pamphlets may be secured from the committee's headquarters.

In the discussions following, comments were given on utility merchandising, selling, cooperation between manufacturers and dealers, sub-contracting and how to eliminate bid peddling.

Probably no other session brought the attending members as close to earth with their problems as the round table discussion on Thursday afternoon when Frank Ederle, Secretary of the Michigan Association, led off with the assertion that no association has any reason for existence unless that organization proposes and supports measures which lead to more and better profits for the members.

He further stated that after many years as secretary of associations he was convinced that every contractor, no matter what line of work he followed, had a very definite and limited area in which he could operate profitably at prices comparable with those submitted by home town contractors. He cited several instances of how useless it is for an out-of-town contractor to try to meet local price when operating 200 or more miles away from his shop and base.

Another important matter brought out in this discussion was the pressing need today for some control over credits. "Far too much credit is now given by jobbers and manufacturers to contractors who have no right to ask for or get credit," said Mr. Ederle. "Such extension of doubtful credit is one of the things which is seriously hampering the expansion and profitable continuance of contractor's operations. The contractor who is and intends to discount his bills is paying in increased prices for the jobbers and manufacturers gambling with doubtful credit," he declared. He recommended that all parties get together through some centralized credit bureau whereby credit information can be exchanged.

Following this address, D. M. Strickland and Bennett Chapple, Jr., of the American Rolling Mill Co., presented a skit "Selling Through." In this skit Strickland played the part of the worried, but willing, sheet metal contractor and Chapple the part of the business building salesman.

◆ ◆

MANUFACTURERS DISPLAYING AT THE CONVENTION

American Brass Co.
American Rolling Mill Co.
The Barber Asphalt Co.
The Barrett Co.
Tom Brown (Distributor)
Copper & Brass Research Assn.
The Hetzel Roofing Products Co.
C. G. Hussey & Co.
The International Nickel Co., Inc.
Johns-Manville Co.
David Levow
National Slate Assn.
Rival Strap Corp.
Weaver-Wall Co.
United Cork Co.

◆ ◆

The plot is that the contractor is trying to look busy doing nothing and hoping that some business "on the fire" would fall in his lap. The business falls—but not in his lap—and the contractor is then willing to listen to some ideas on how to promote business through the use of penny postal cards, use of his truck as a traveling advertising sign board, some personally directed letters to old customers and good prospects, and general cleaning up of the shop and show window so that customers can see just what a sheet metal shop looks like without breaking a leg.

While the under-current of humor enabled the actors to hold the meeting's close attention the ideas presented were so sound and adaptable that many contractors were heard to remark that they guessed they would try a dose of that medicine personally. Those who have heard this team in action at previous conventions can appreciate just how interesting this skit proved.

The annual banquet was held Thursday evening. On Friday all associations met to conclude their business programs and appoint officers and committees for the coming year. The business concluded was outlined at the beginning of this report.

Additional details of the roofing sessions will be published in a later issue

◆ ◆

A Job Figured By the New Code

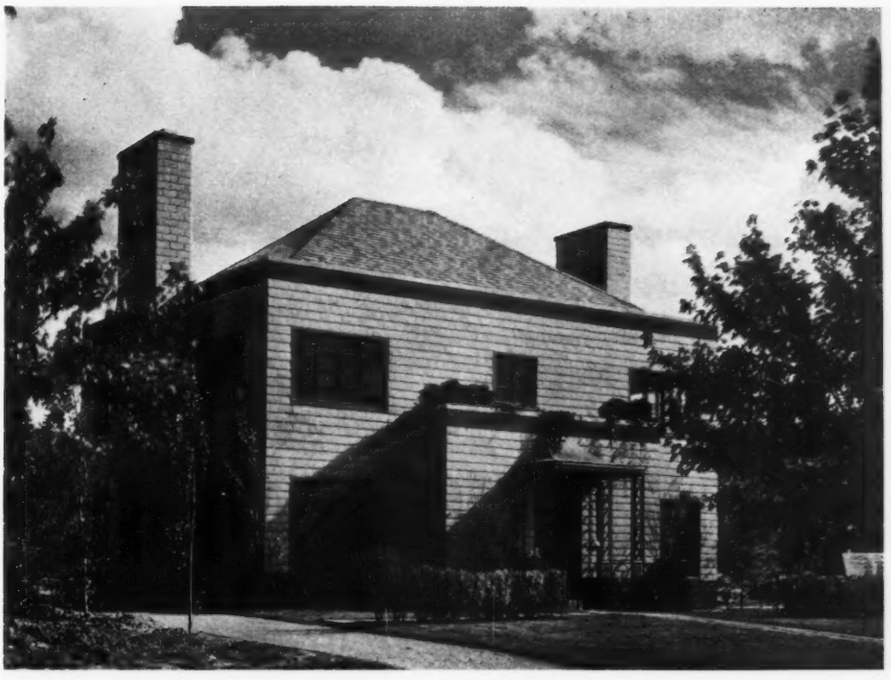
[*Continued from page* 17]

will be the dimension of our two stacks for this room.

Article 2, Section 8, (a) of the tentative code states that where grilles or registers are placed below the breathing line level, the net free area in square inches shall be 6 times the room basic factor (item 24) and (b) where located more than 6 feet above floor the net free area shall be not less than 4 times the room basic factor. Our inlets are located 6′-6″ above the floor in room 101 and are two in number, hence we have 21.655 divided by 2 equals 10.877 times 4 equals 43.3 square inches net free area. As the average register is 75% free area our register will be: 43.3 is equal to 75% of 58 or 58 square inches gross area. Our stock is 12 inches in width hence we choose a grille 12 × 5.

The balance of the rooms have their registers sized in the same manner.

(To be concluded in March)



The All Metal House —

erected in a Cleveland suburb of a new material and of a new design may point the way to an entirely new field of activity for the sheet metal contractor equipped to fabricate or erect large metal sections

ONE of the most unusual dwellings in the country has been opened in Cleveland, Ohio. This is the porcelain enameled residence built by the Ferro Enamel Corporation of that city. The house is built of steel frame, with a porcelain enamel exterior, this porcelain enamel being a hard, colorful finish commonly used on ranges, kitchen pots and pans, but applied on the house in shingle form.

The house, the first of its kind, was opened on October 9, and the company reports a total of more than twenty-five thousand visitors since construction began.

The purpose of the residence is to aid in the development of the low-cost, mass-production house, and to demonstrate the merits of porcelain enamel as an architectural medium.

The steel structural frame is of four-inch channels, and is similar to the ordinary wood frame except, of course, that there are fewer studs. Siding is "Ferro-Clad"—fibre insulating-board sandwiched between two steel sheets—covered on the outside with enameled shingles. The shingles are of 20-gauge steel entirely covered with porcelain enamel. For erecting, the shingles are vulcanized to roofing felt, and nailed to the steel siding in strips of six. A completely weather-proof job results.

The shingles on the side walls are of a deep sandstone shade, with rich brown over-spatter. Trim and contrast is provided by a band of blue-green shingles around the base, and another band of the same color just under the coping.

The roof is in three shades of russet, blended to give a pleasing mottled effect. A matte or dull-finish enamel has been used, instead of the glossy finish ordinarily seen on ranges and other household products.

Due to the general construction and to an additional four inches of mineral wool insulation in the walls, the house will be exceptionally easy to keep warm in winter and cool in summer. The house is storm and lightning proof, and will have practically no maintenance cost. The exterior will require no painting and can be kept permanently bright and new with only an occasional bath from the garden hose.

It is expected that much of the preliminary work for houses of this type can be done in a factory, thus materially lessening the cost of labor. The frame, windows and sheathing were prefabricated in the factory of Truscon Steel Company. Erection was begun on July 8th. It required about five working days to complete frame and apply the steel siding. The steel shingles, which were made in the plant of the Vitreous Enameling Company of Cleveland, Ohio, were applied to the walls of the house and garage and

also the roof, in five days. The total time for erection was less than half that ordinarily required for similar type constructions made in the conventional materials.

Many novel uses for porcelain enamel have been found in the interior of the house. This finish is found on all lighting fixtures, electric switch plates, base-boards in the bed rooms, cast iron tile for vesti-Lule floor, and on the large combination sink and dish washer. In addition, enameled wall tile, manufactured in the plant of the Youngstown Pressed Steel Co., Warren, Ohio, have been used in the kitchen, lavatory, and bath room.

Porcelain enamel is a form of glass fused onto metal, either sheet steel or cast iron, at high temperatures. The chemicals consist of various Silicates and Boraxes.

Metal is used inside the house as well as outside. The tile walls of this kitchen are enameled like the shingles. Windows and frames and the equipment are also metal

Proposed Uniform Mechanics Lien Law

GREATER security against loss by building owners when they are paying their accounts for new building construction is seen as a development which will result from the adoption by the states of a uniform mechanics' lien act, a revised draft of which has just been completed by a committee working in collaboration with the Commerce Department. The act will also eliminate difficulties in receiving payments by contractors, material men and others engaged in construction operations, it is said. The adoption of the act, the committee believes will tend to improve credit conditions in the building industry and will provide an equitable balance between the burdens to be assumed and the benefits to be derived by persons affected by legislation of this nature.

The committee which prepared the act was appointed by President Hoover while secretary of commerce in 1925 at the request of the National Association of Builders' Exchanges and is representative of all the interests involved. Co-operating with it was a special committee appointed by the National Conference of Commissions on Uniform State Laws. The conference gave the act its approval at its annual meeting in September, 1931, and this body and the American Bar Association will take their final action on the draft at their annual meetings in 1932.

Following are the salient features of the revised uniform mechanics' lien act:

When the owner observes procedure that is set out in the act, liens against his property are limited to the contract price. By the terms of the act liens are effective from the time the building project is commenced. Provision is made for the giving of informal notices by lienors to inform the owner of unpaid accounts, and the making of payments by the owner is regulated.

The act provides penalties for the misapplication of funds intended for construction purposes.

As a preliminary to instituting action to recover a lien debt, a formal claim of lien would be filed for public record within three months after the final performance of services by the lienor and the form of this notice is set out. Action to enforce the lien may be begun within one year from the filing of this notice.

The priority of liens among themselves and in relation to other forms of encumbrance is designated.

The act also provides for the taking of a bond from the contractor by the owner which would be conditioned for the payment of all lien claims. The method of enforcing claims under such a bond is prescribed.

Copies of the revised draft in printed form may be purchased from the Secretary of the Committee, Dan H. Wheeler, care of Bureau of Standards, Washington, D. C. Single copies are available at 10 cents per copy and a schedule of reduced prices applies on quantity lots in excess of 25 copies.

Bodily Comfort

[Part II]

By L. W. Millis

A series of articles presenting in plain language useable sales points which your customer can understand. The air conditioning contractor will find in this series the answers to most of the comfort questions raised by prospects.

IN ORDER to compare the heat loss from our bodies it is necessary to get some standard of heat comparison. We will, therefore, make another side excursion. We think of temperature in degrees. We can call that the intensity of heat. A hairpin could be so hot that it would cause a servere burn. The same quantity in a larger piece of metal would hardly be noticed.

Measurement of heat is certainly one of man's greatest scientific achievements. Heat has no existence of its own. It has no volume, no weight, no color, no sound, no taste, no odor. It is only an evidence that something has transpired in things that do have an existence. Nevertheless, we buy it and use it in as definite terms of quantity as we do flour or bacon. Instead of pounds or tons this nonentity is handled through the use of a term called a British thermal unit or B.t.u. It is the quantity of heat that will raise the temperature of one pound of water from 63 to 64 degrees; a rise of one degree. Or it will raise 1 cubic foot of air (at standard pressure) 55 degrees. Or 55 cubic feet 1 degree. Here is a match. If we light it and allow it to burn about ¼ of its length, it has given off about one B.t.u. Combustibles of every kind have ascertainable heat values are measured in B.t.u.'s.

Loss Proportionate to Work

The energy given off by our bodies increases or decreases with the amount of work we perform. If a person sitting in front of a door should rise and turn the key in the lock of the door and sit down again he would use up about one B.t.u. of energy or heat. A person sitting in a rocking chair and in action may lose 400 B.t.u. per hour. A person eating may lose 500 or 600 B.t.u., while a person running at top speed in a hotly contested race may lose as high as 2,200 B.t.u.

There is also considerable variation in the heat given off by individuals. If two adults are the same height, the heaviest of the two gives off more heat than the lighter person. If they are the same weight, the taller gives off the most. If one is young and one old, the young person loses heat faster than the old person. Amount of skin surface also affects heat loss. It may interest you to know that the average person has 20 square feet of surface and loses about 19 B.t.u. per square foot per hour. It is customary in making calculations of heat gains in auditoriums to calculate at the rate of 400 B.t.u. per hour per person.

The whole problem of bodily comfort revolves around the manner in which the heat from the body is lost. The heat loss from the body is made by a combination of three sources. Radiation, convection and evaporation. Heat lost by radiation is the same as the radiant heat from a stove. It travels from the hot thing to some colder thing. This transfer is effected by some sort of a wave which passes through the air without warming the air but is translated in terms of heat when it strikes a colder substance.

Convected heat (from our bodies) is the heat that the air in contact with our skin and clothing absorbs as it passes by. Evaporation is a cooling process. It requires 1,050 B.t.u. to evaporate one pound of water. When moisture on the surface of our bodies is evaporated, heat is absorbed and carried away. It is obvious that all three of these methods may not operate on our bodies in sufficient equilibrium under all the various demands of the body to keep the heat loss at a rate that brings comfort. Under normal conditions the loss by radiation is 46 per cent; by convection 30 per cent; by evaporation 24 per cent. The temperature of the body is close to 98 degrees, but the temperature of the skin is said to be about 96 degrees.

How the Body Works

Let us suppose that a human body is surrounded by objects warmer than 96 degrees. It is obvious that the 46 per cent of heat presumed to be lost by radiation will not occur. Of course, the percentage of loss by convection and evaporation must increase. It is fortunate that the base of the brain contains a thermostat more accurate than the ones man has devised. The thermostat calls the blood away from the skin and throws the sweat glands into action. For the present we will assume that the heat loss by convection is normal, and that the air can absorb some moisture. As soon as perspiration increases, the air absorbs it. In doing so the body yields up heat to vaporize the perspiration and finally it is absorbed by the atmosphere.

The Indiana Convention

THAT an active state association—one which extends the right hand of good fellowship and pounds away all year through at problems which need solution—can attract members to an annual convention was proved January 17, 18, 19 in Indianapolis when the Sheet Metal and Warm Air Heating Contractors' Association of Indiana held their 1933 convention in the Antlers hotel.

By the end of the second day the registered attendance had passed the 160 mark and most of the members remained for the full three-day session. A surprising feature of this registration was the large number of contractors attending—practically one-half of the attendance.

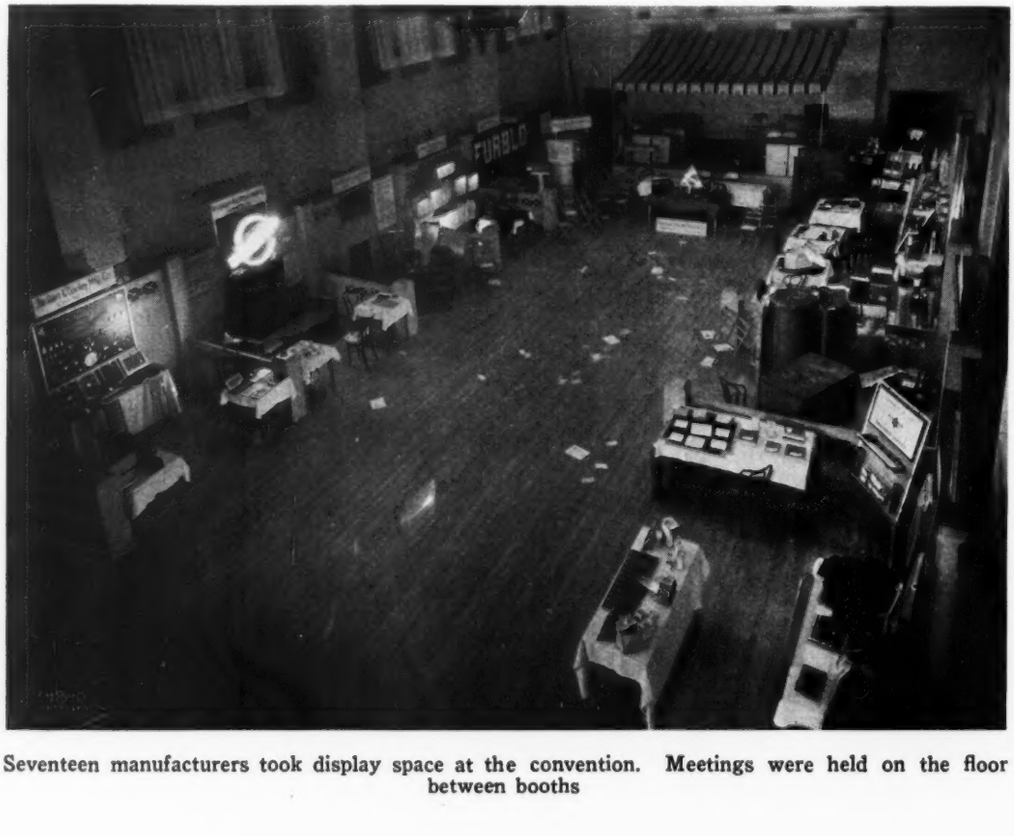
A considerable amount of important business was taken care of at this meeting. For example, a committee consisting of Charles Rundell, chairman, A. W. Dudley and J. Roland was appointed to act as a legislative committee to perfect and steer important bills through the Indiana legislature. Under this general committee a sub-committee of Frank DeWeese, C. E. Tharp and Homer Selch was named to draw up and guide through the proper channels the proposed bill licensing contractors and specifically itemizing the classification of work for our trades under general contracts. Another committee consisting of Joseph Gardner, Harry Neal and Thos. Ewing was named to handle the proposed state law change raising the compensation percentage from approximately 60 per cent of wage to 100 per cent.

New officers for 1933 were elected. Their names are shown in another part of this report.

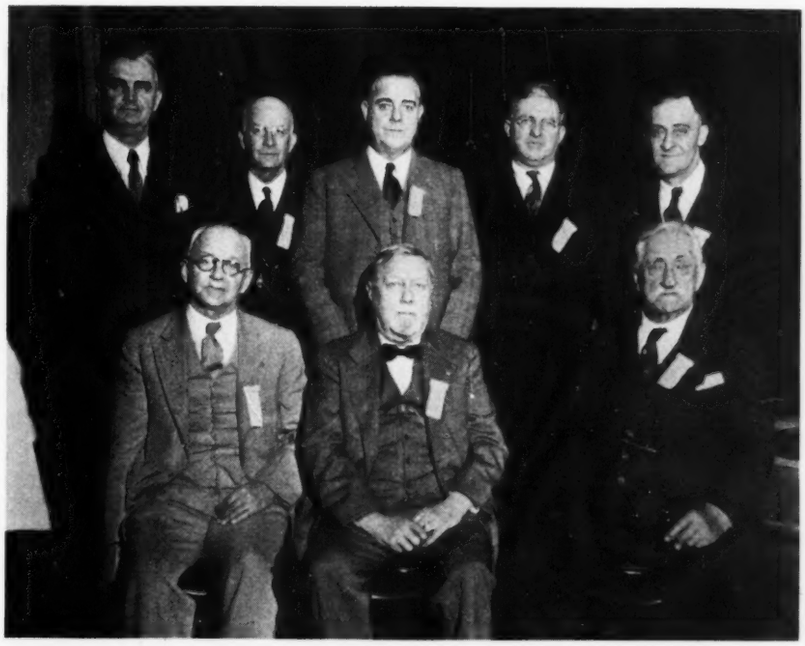
Wednesday Program

Edwin A. Scott, Editor of Sheet Metal Worker, was unable to attend the convention, but sent a paper which was read by his representative. The subject was "Standing On Your Own Feet." "There never was a time," declared Mr. Scott in effect, "when it is so necessary for a contractor to know exactly what he is up against and plan accordingly. It is necessary for every individual to be self sufficient, to know where he is headed and how he intends to reach his goal. We have, as contractors, come more and more to lean on our manufacturers for guidance and help. This should and must be replaced by an independence which will enable us to stand on our own business feet."

D. M. Strickland of American Rolling Mill Company discussed "Sheet Metal Values" from the angle that the public is moving from a purely "bargain" hunting frame of mind to an appreciation of true value, whether that value be clothes, groceries, houses or sheet metal and heating work. "We in this industry," stated Mr. Strickland, "know that the values in ma-



Seventeen manufacturers took display space at the convention. Meetings were held on the floor between booths



Officers of the association. Upper row, left to right—Paul Jordan, Thos. Ewing, C. C. Sieb, Homer Selch, C. Branham. Seated—A. W. Dudley, Jos. Gardner, O. Voorhees

terials, in service, in knowledge which we are able to give were never better. Materials can be bought cheaper, service can be obtained at the lowest costs in years, knowledge is expanding out of all porportion to the price asked for it. In short, our industries are giving the buying public real value for the money we are asking it to spend.

Air Conditioning

"What's Ahead in Air Conditioning" was the title of an address made by F. H. Mehrings of the Meyer Furnace Co., Peoria, Ill. This address will be reprinted in a later issue. A departure from usual practice was tried out following this address when J. D. Wilder, Editor of AMERICAN ARTISAN amplified some of the points of Mr. Mehring's paper and called upon several members for a brief discussion of specific problems connected with air conditioning.

In this discussion the need for general advertising to keep the name of the contractor before the prospect was explained by example. G. A. Voorhees outlined the progress made to date in the perfection of fans and blowers and indicated some of the changes in equipment and application which may be expected shortly. Homer Selch talked about the need for good appearance in systems and how necessary it is for the contractor to know what air conditioning is all about. J. H. Van Alsburg discussed some of the problems of control, emphasizing how difficult it is to adequately control temperature with one thermostat, how new units which permit mixing chamber operation may be expected and how important it is for the contractor to keep abreast of improvements in control hookup.

Wash Your Face

A very interesting address was given by Mat Friedman on the subject "Wash Your Face." The meat of this paper was that as a general rule our contractors have not yet become aware of the importance of good, clean display floors and show windows. Typical windows were shown by actual photographs and windows which can be dressed at a very small cost were shown in miniature.

Fred T. Lawrence of the Continental Steel Corp., read a very instructive paper on "Protective Coatings." This paper described the processes used to coat sheets. More important, Mr. Lawrence explained how a certain grade and coating gave that particular sheet certain qualities which fitted the sheet for special services.

Thursday Program

The opening address of the Thursday session was on "Heat and Other Things" by A. F. Frazee of the Rudy Furnace Co., Mr. Frazee said in part—

"As the new sun, air conditioning, rises to bring the dawn of a vast era of promise and profits to retail heating and ventilating dealers, a large and vital obligation to furnish engineering and merchandising leadership for them is settling solidly upon the shoulders of wam air heating manufacturers.

"The major problem is one of engineering leadership and a reliable engineering service. The dealer of tomorrow will fight shy of manufacturers who guess or imitate. He must insure himself against promises which cannot be fulfilled and broken guarantees by securing the right manufacturer hook-up.

"Secondly, since this is a highly specialized field, the dealer must have contact with a manufacturer who brings him a definite merchandising plan. There are profits abundant—profits for the real merchant in the field. But conditioned air is going to be sold only by aggressive sales or-

OFFICERS FOR 1933

C. C. Sieb—President.
C. Branham—1st Vice-Pres.
C. B. Rundell—2nd Vice-Pres.
Thos. Ewing—Treasurer.
Homer Selch—Secretary.
Paul R. Jordan—Executive Sec.

DIRECTORS—1933-1936

A. W. Dudley.
O. Voorhees.

DISTRICT GOVERNORS

W. C. Huguenard..Fort Wayne
Chas. L. Gatz.....Gary
J. A. Harris.....South Bend
Delbert Dawson.....Muncie
Wm. Strate .....Lafayette
Nelson Miller .....Richmond
Elmer Mullin .....Indianapolis
J. R. Everroad.....Columbus
L. C. Heitger.....
.....Bedford and Bloomington
A. E. Hartmann....Terre Haute
Jos. A. Meyer.....
.....Evansville and Vincennes

ganizations, people trained in the art of selling."

"The furnace manufacturer in the past has been content to create some good looking photographs of his equipment and to place these in the hands of his prospective dealer with the words, 'you are now my authorized dealer.'

"This furnace man probably was a sheet metal worker, an artisan, a craftsman who had spent years learning his trade. Rarely was he trained to merchandise. He knew nothing about selling methods, about advertising.

"The result was that he became the victim of price bickering. The destinies of the industry, therefore, rested in the hands of men untrained in the art of merchandising."

"The manufacturer supplying sales campaigns, sales literature, sales assistance through trade representatives will not be able to sell merchandise at the lowest price. Such a manufacturer is not selling cast iron by the pound, rather he is building an agency and is concerned about the future reputation that both his product and his dealer enjoy.

E. C. Carter

E. C. Carter, Editor and publisher of Snips, presented one of the most interesting talks of the meeting in his discussion on what the branch officers are doing to get business. Following are some of the high-lights of Carter's survey.

In Chicago the independent dealer is at some disadvantage because the branch office overhead is usually lower, permitting lower costs. One Chicago association has overcome this handicap be printing cards which state that the association as a group will be responsible for any installation made by a member. This has also helped to overcome the argument advanced by the branch office—"beware of the little fellow, use us because we are a national company."

A surprising amount of work has been unearthed because of families doubling up and requiring heat in sun or sleeping porches, unheated bedrooms, stove heated houses, etc.

One Chicago branch is pushing January cleaning on the argument that January is the half way mark in the heating season and a cleaning now will save fuel cost for the rest of the season.

Some branches are laying furnace parts out on the sidewalk in front of prospect's houses to scare away competition even though the branch has not closed the sale.

Some of the officers of the Furmets. Seated—Geo. C. Joslin, Geo. Kelly, Robt. Renick. Standing—Harry Jones, Paul Jordan

One branch places an inspection slide in every furnace so that the owner can look at the furnace from time to time.

Another branch visits the job after installation and places recording thermometers in the rooms to show the temperatures obtained. The recording charts are then signed by the owner so that he cannot later complain that the job won't heat. These signed records have stood up in court.

An explanation of anemometers, psychrometers, recording wet and dry bulb thermometers and other instruments was made by R. H. Biederman of the Taylor instrument Co.

An inspiring talk was given by George Joslin when he reviewed things the contractor ought to do. "Read the trade papers, they are filled with valuable and practical ideas;" "house to house canvassing is on the wane because it has been overdone, so use letters, direct mail, advertising in its place"; "new ideas, new products are comnig out so rapidly that every man must follow progress month by month or lose step with advancement."

F. A. Kappleman of the Chase Brass & Copper Co., discussed the new handbook "Sheet Copper" published by Copper and Brass Research Ass'n. In a discussion of copper Mr. Kappleman answered several direct queries regarding uses of copper.

The concluding address by Frank Meyers, Owens-Illinois Glass Co., on Filters was the first practical discussion of this important subject heard by the contractors, so they declared. This address will be published in a later issue.

The entertainment provided for the visiting ladies, who decided to organize an auxilliary, and the banquet given by the Furmets were in keeping with past years. The banquet entertainment was both varied and excellent. The speaker of the evening was A. F. Frazee who lived up to his reputation as an after-dinner speaker.

The initiation and entertainment given by the L. O. S. T., believe it or not, was more exciting than formerly.

FURMET OFFICERS

Pres.—George Kelly.
1st V. P.—Robt. Renick.
2nd V. P.—H. S. Giffin.
3rd V. P.—Lee Gillespie.
4th V.P.—Herman W. Schmidt.
Secr.—Harry R. Jones.
Treas.—John C. Henley.

DIRECTORS

Geo. C. Joslin.
Paul R. Jordan.
W. P. Meador.
Al A. Nemec.
Wm. Tudor.
Russell S. Thompson.

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Automatic Heat *and* Air Conditioning Section

No man today can name with certainty the industry which will get the bulk of future air conditioning. While we may feel that warm air heating is entitled to this business, we must realize that we will have strenuous competition and that the industry which eventually gets the business will be that industry which gives the public the most satisfaction and the most reliable service.

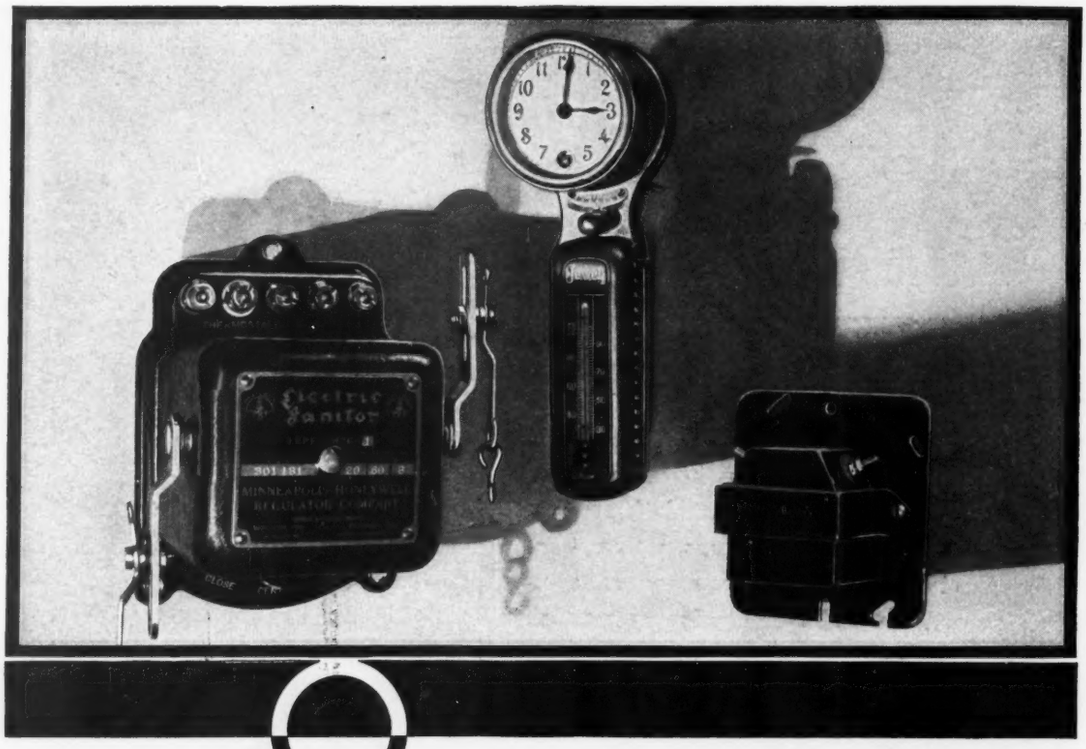
. . . . To hold our leadership every dealer will have to learn how to sell equipment demanding prices far above the quotations we are accustomed to. Cheapness will, of course, be a factor, but satisfaction created by good equipment, rightly installed, will be more important. This will require sales ability.

. . . . Every dealer will have to understand engineering or make connections which will insure adequate engineering if he expects to qualify in the eyes of the public and stave off competition which will strive to substitute fancy advertising and high powered selling for engineering and business stability. This will require technical knowledge.

AMERICAN ARTISAN
Automatic Heat and Air Conditioning Section

The New **DeLUXE**

ELECTRIC JANITOR



8 DAY CLOCK CONTROL

At the LOWEST PRICE *ever offered*

WITH the new DeLuxe Electric Janitor you can sell 8-day clock control for all domestic coal fired heating plants at the lowest price in history.

The advantages of clock control are very distinct. The new DeLuxe Electric Janitor automatically lowers temperature setting at night and restores it in the morning, at the hours selected, affording additional economy and added comfort, convenience and health. (Conclusive tests show a 3.2% saving for every degree temperature is reduced.)

The motor—the thermostat—even the transformer have features only found in much higher priced damper regulators. Yet the new De Luxe Electric Janitor gives you an 8-day jewelled balance clock thermostat of the open contact type and a brushless induction motor, which requires no lubrication or service at any time. Sturdy, simple and compact, the new DeLuxe Electric Janitor operates direct from the house lighting circuit. It is easily and quickly installed, and is designed for use with limit controls. A basement switch is provided for closing dampers when stoking.

Here is a damper regulator you can recommend and sell with confidence. Minneapolis-Honeywell Regulator Company, 2726 Fourth Avenue South, Minneapolis, Minnesota.

The DE LUXE ELECTRIC JANITOR is packed complete, ready to install. Order through your jobber

DEALER PRICE **$36.50**

MINNEAPOLIS-HONEYWELL

Control Systems

In these articles Mr. Tomlinson has attempted to bring out the basic factors which govern humidity—its generation, handling, control — as found in the average warm air furnace plant. The subject is so broad, but so important, that we desire to cover every possible question. Perhaps some questions have not yet been covered. If so, such questions will be answered in following articles if readers will tell us just what points need to be amplified.

By Malcolm Tomlinson

Principles of Humidification

WARM air furnace humidifiers of all types depend on a number of factors for their success. One of these is the tightness of building in which they are installed. In the second article of this series the necessity for tightness was emphasized. *Air conditioning equipment manufacturers should be reluctant to bid on jobs where the building is not likely to be tightened.* The second factor is the control provided with the humidifier, because design and location of the control influence the results attained. A third factor is the heating medium.

Two types of controls are used today in these humidifiers—the humidostats and the thermostats. The humidostat controls the relative humidity *directly* by means of the dew point, the dry bulb temperature or the relative proportions of dry and moist air which it admits to the conditioned space. The thermostat may control the relative humidity *directly or indirectly.* When used for *direct control* it consists of two thermostatic elements. One is located in the air conditioned space and affects the prevailing dry bulb temperature. The second is located at the outlet of the humidifier and controls the dew point. In this way a constant temperature difference is maintained between the two elements.

Indirect thermostatic control can be had through either the wet bulb or the dew point temperatures. Two thermostats are required. One controls the dry bulb temperature by varying the volume of air entering the conditioned space. The other fixes the dew point or wet bulb temperature either by varying the amount of recirculated and outside air admitted to the humidifier, by varying the temperature of the entering air or by varying the temperature of the water entering the humidifier. There are also other combinations which can be had with thermostats and humidostats, but those mentioned are representative.

We now come to the part which these control instruments play as far as results are concerned. They must be *rugged in construction* for, otherwise, they would require endless service. They must be *reliable* over long periods of time to insure continuous operation. They must be extremely *sensitive* to any change in the temperature or the humidity which they are called on to measure for, otherwise, there would be no advantage gained in their use. Above all they must be *accurate.*

It is apparent, then, that these little instruments must be almost superhuman. Often a design which attains an approach to perfection in one of these four features, does so at the sacrifice of at least one of the other features. The first two of these requirements can be checked up against a given thermostat or humidostat only by actual service tests over a fairly long period of time. The third, sensitivity, may be determined very quickly. Accuracy, on the other hand, can be checked only with accurate and reliable indicating instruments.

The sensitivity of control equipment is affected by two factors—time and variation. The pendulum of grandfather's clock swung as far to the left as it did to the right of its central position. A similar fluctuation from a desired temperature or relative humidity will be found where automatic controls are used since it is practically impossible for a control to hold these quantities exactly at a normal figure. It is essential, nevertheless, to keep the variations from the normal at a minimum.

For example, if a humidostat were set for 40 per cent relative humidity, you could suspect that something was wrong if the humidity varied between 25 and 55 per cent. Again, under like conditions, a varia-

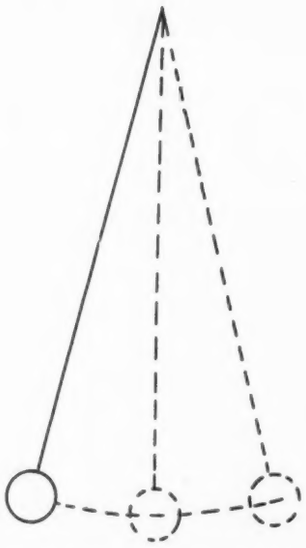


Fig. 1

The operation of humidity and temperature controls is much like the swing of a clock pendulum. When it swings in one direction the natural tendency is to swing equally far in the opposite direction. This natural phenomenum accounts for the two-way cycle of most recording instruments. The finer the adjustment, the shorter the swing

tion between 45 and 48 per cent would also indicate trouble. In the first place the variation from normal —15 per cent relative humidity—would be too great. In the second place the variation obtained—3/2 per cent—would indicate a normal of 46½ per cent when it actually should be 40 per cent.

The fluctuations of an instrument may be very small but the variations of the control circuit to which it is connected may be quite high. Factors which are

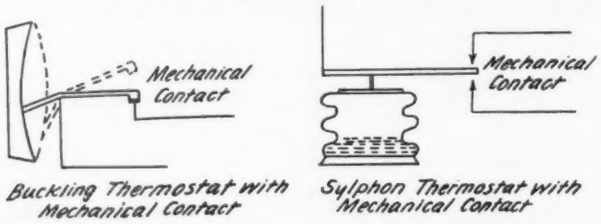


Fig. 2 and 3

The drawing to the left shows diagrammatically the action of a buckling thermostat using mechanical contact. The drawing to the right shows a gas filled bellows control

responsible for such conditions include remote control (considerable distance between the sensitive element of the control and the operating mechanism), the weight or power required to operate the control mechanism or dirty contact points.

The instant the control instrument operates is by no means the instant at which the temperature or humidity changes. As a matter of fact, there is always an interval between these two periods. This interval is known as the "time lag." This lag depends, as far as its length is concerned, on such factors as the type of instrument which supplies the sensitive element of the control, the remoteness of the control and the sluggishness of the mechanism.

Some types of humidity control apparatus depend on the expansion and contraction of a hygroscopic material. This, of course, is possible since most animal, mineral and vegetable substances extract moisture from humid air and give up moisture to dry air at a rate proportional to the relative humidity. Others, such as the humidostat, are designed in a manner similar to certain types of thermostats.

There are many types of thermostats available, but only a portion of these have found acceptance in the humidity field. These include the buckling diaphragm, the sylphon, the mercury and the electrical thermostats. They are shown in the accompanying figures. The buckling diaphragm type contains a liquid which vaporizes and exerts a pressure sufficient to move the diaphragm a definite amount at a particular temperature. This type of thermostat is specially suitable for moving heavy lever arms and is positive and quick in action.

The sylphon type is a bellows within which a gas or vapor is sealed. It also has a definite movement for particular temperatures. It is strong and positive in its action, but slower and less powerful than the diaphragm type. The mercury type is a vessel containing mercury. Contacts are provided which open and close a circuit as the mercury rises or falls within the container. This device can be made quite sensitive to temperature changes. It is not suitable for use where sudden variations in temperature are to be expected for its action is quite slow. There are a number of types of electrical thermostats which are suitable for the purpose. They may be used to operate relays, electrical switches or electrical valves. They are very sensitive and may be had for most every type of service in humidification control.

The thermostats and humidostats described are of the less complicated types. It is possible, especially in the electrical types, to procure instruments which not only control but which will also indicate or record dry bulb temperatures, wet bulb temperatures, dew points or relative humidities.

An illustration of the value of thermostatic control is given in Figure 5. Two buildings of the same size and style in exactly the same location were heated with steam. The thermostat in one building markedly reduced the steam consumption.

We are now able to turn to the question as to what results can be expected from the automatic humidifier—based on data gathered at the Research Residence at the University of Illinois. This data is to be found in the University of Illinois Engineering Experiment Station Bulletins 189, 230 and 246. Before we enter into a discussion of these data it is necessary

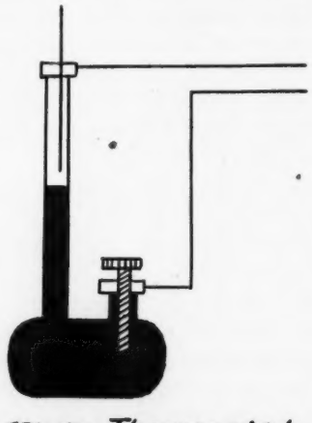


Fig. 4

The mercury type control is very sensitive, but somewhat slow in following air changes. There are many forms of this general principle applied to both electrical and mechanical instruments

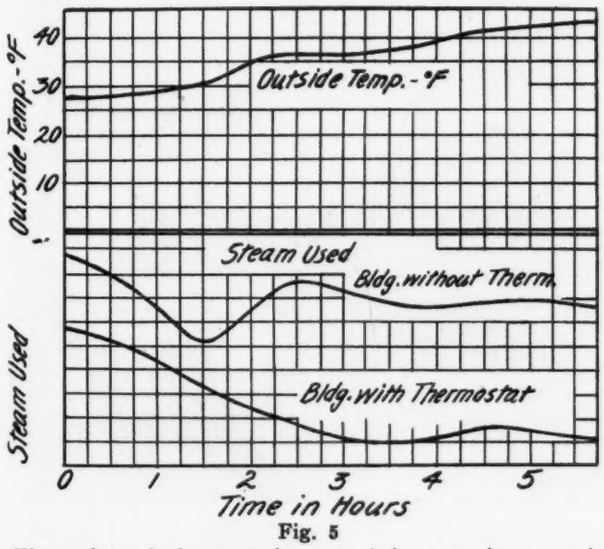


Fig. 5

The value of thermostatic control in operating cost is shown in this chart which records steam consumption in two identical buildings, one thermostatically controlled; the other manually controlled

to point out some limitations which must be kept in mind in analyzing this information.

Bonnet temperatures determine not only the capacity of the warm air furnace but also its evaporating effects. This, of course, is only true in regards to the latter part of the last statement as long as evaporation depends on bonnet humidifiers. Thus, in any consideration of automatic humidifiers, bonnet temperatures are of the utmost importance.

Now we must also consider that the operating attention given the warm air furnaces at the Research Residence exceeds the attention usual in residences. Therefore, while the bonnet temperatures, under test conditions, varied 56 deg. Fahr. it is altogether reasonable to believe that a variation of about 110 deg.

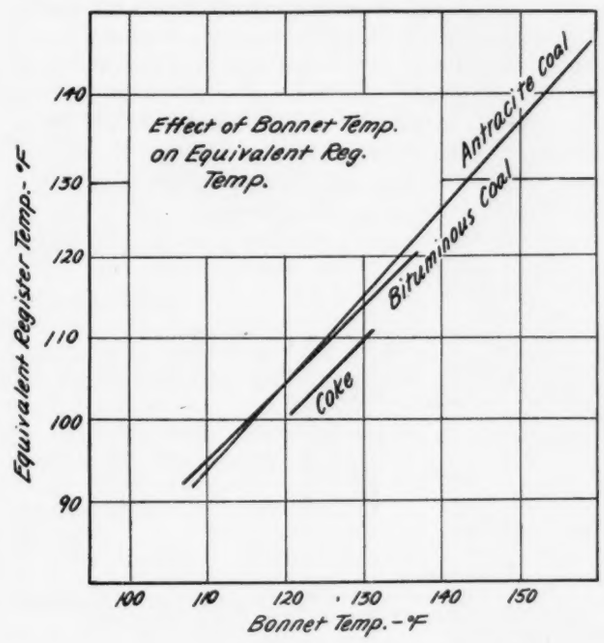


Fig. 7

If our plant is designed for operation at a predetermined register temperature we may find the equivalent bonnet temperature from this chart which is plotted from data at the Research residence. The drop is practically the same for three hard fuels in gravity operation

is more nearly the average for field conditions. This assumption will be used in drawing later conclusions.

In Figs. 6 and 7 the bonnet temperatures from the above data are plotted against the evaporation, in gallons per 24 hours, and the equivalent register temperatures. Both of these sets of curves take account of the fuel used. In Fig. 6 the range covered by bonnet, front and base pans is shown for both anthracite and bituminous coals. The upper limits of these two ranges (close to the lettering) represents the evaporative effect of bonnet humidifiers.

These data are, of course, for gravity installations. The use of the charts is very easily seen. For example, in Fig. 7 it is found that an equivalent register temperature of 122 deg., with either anthracite or bituminous coal, will give a bonnet temperature of about 137½ deg. In Fig. 6 this temperature in the bonnet will evaporate 6.67 gallons of water per 24 hours under gravity conditions in a bonnet humidifier.

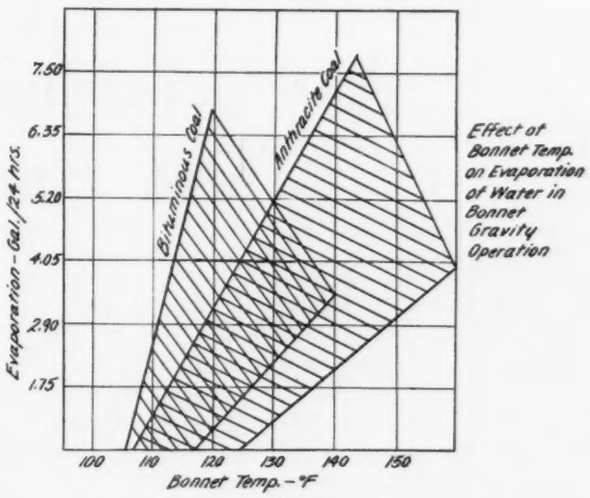


Fig. 6

On this chart the amount of water evaporated in 24 hours with two types of fuel and at various bonnet temperatures is shown. The shaded area in each case represents the range in evaporation existing with various types of pans—dome, crescent, front

We may now compare gravity and fan operation in order to draw comparisons.

TABLE 1

Comparison of the Effect of Gravity and Fan Operation

Fan Type	Fan Location	Fan Speed	Avg. Bonnet Temp. Deg. F.
Propellor	Bonnet	Low	117
Propellor	Bonnet	High	92
		Gravity Operation	116
Propellor	Cold Air Shoe	Speed not known	110
		Gravity Operation	120
C'ntrifug'l	Cold Air Shoe	Low	124
		High	102
		Gravity Operation	128

Glancing over this table it is at once possible to see the relative air temperatures, under average conditions, in the bonnet under fan and gravity methods of operation. It will be noticed that the three values for bonnet temperature are of the order of 116, 120 and 128. It should be understood that this is, by no means, due to the location of the fan in the furnace. Further-

(*Continued on page 37*)

Here are the three houses which were sold in 1932 on the appeal of air conditioning

Air Conditioning Sold These Three Homes in 1932

OF all the sales fields which should and will mean profit and satisfaction for the automatic heat and air conditioning dealer, the real estate operator today stands high up in the picture. This applies not only to the speculative builder or the builder of either volume houses or high class residences, but to the realtor using remodeling as a means of moving stagnant property, as well.

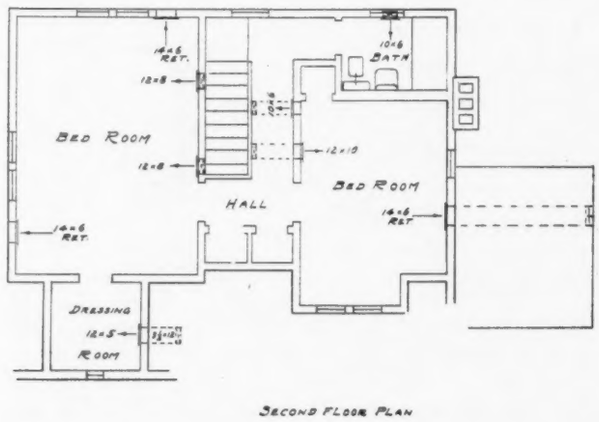
This is the story of three conditioned air systems installed for a real estate builder in an exclusive Minneapolis residential section. It is the story of results which every automatic heating contractor should find applicable to this same realtor field in his own community. These three houses stand side by side on a bluff overlooking the Mississippi River Gorge.

These houses were designed by an architect—Cliff McElroy of Minneapolis—for J. G. Burtness, a real estate builder who wanted something different and found that something in conditioned air.

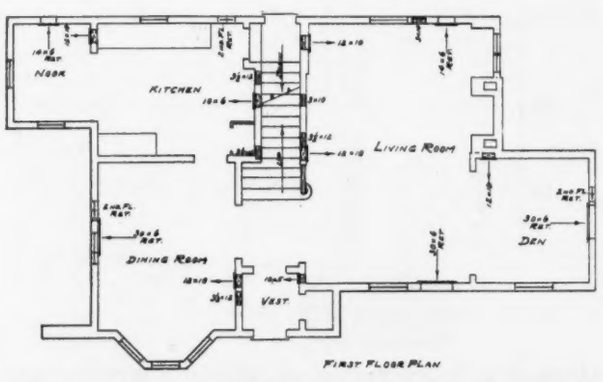
The houses were planned to include every convenience buyers today require. Amusement rooms, tile baths, indirect lighting, electrical refrigeration, even illuminated house numbers are just a few of the features accepted. But most important of all is the conditioning system which really sold these houses in times when most houses are a drug on the market.

That the builder really gave credit to the conditioning system for selling these homes is attested to by his letter which is reproduced with this article. How the results obtained were secured by sound engineering and careful installation can be seen from the detail drawings which show interesting features of the systems and by the floor and basement plans which show the details of the engineering design.

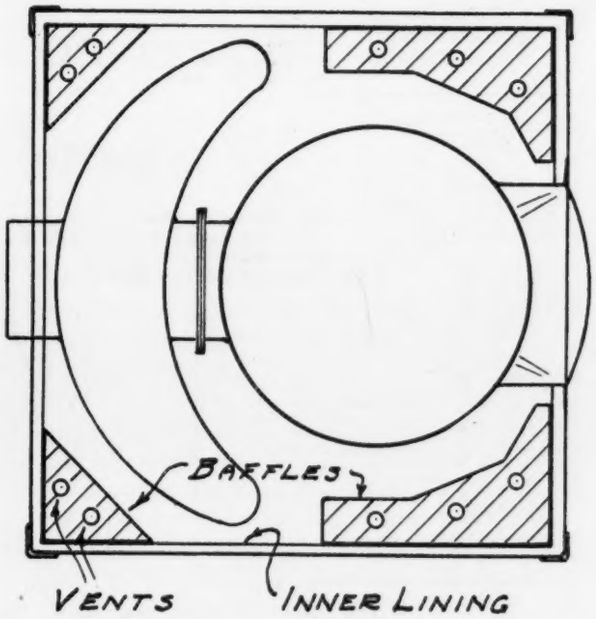
While careful study will bring out these features, a number of them are well worth mention here. The



The second floor plan shows inside wall inlets and outside wall returns and at least one return from each major room



This first floor is practically open with a large living room, dining room and den opening through arches. The distribution system is especially interesting.



The casings were baffled in this manner for blower application. The baffles are completely closed in top and bottom

details described apply to all three of the houses, which have identical systems, except for such minor changes as were required by the three different types of architecture and floor layout.

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Gentlemen:

It is my pleasure to give you this written expression of my appreciation of and enthusiasm for the three air conditioning systems installed by you in the houses built by me this spring at 3642, 3646 and 3650 Edmund Blvd., Minneapolis.

The washed air feature is the best thing I have ever seen in a heating plant. The cleanliness and the humidity of the air in these homes are such as to give one the feeling of continual spring weather during the winter.

During the summer months it has been possible for us to maintain an inside temperature as low as 15° lower than the outdoor temperature in the middle of the day.

Needless to say, I am very enthusiastic over this modern method of heating, and I am happy to report to you that the fact that these homes were heated with conditioned air was one of the principal selling arguments which I used with success in selling the three houses.

I am very enthusiastic over this my first experience with conditioned air.

Yours very truly,
(Signed) J. G. BIRTNESS.

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Each of the homes is equipped with a Waterbury Seamless Furnace, Bullet oil burner and complete air conditioning system in which the Ampeco Washer-Blower is used.

The basement photograph and the floor plans show how cleverly these jobs were laid out to conserve basement room and to conceal basement piping. Each amusement room and each laundry is completely free from piping. In one of the homes the only exposed piping is inside of the furnace room, which is 4½ feet by 14 feet in size, leaving the entire balance of the basement entirely free of piping for amusement room, laundry and storage purposes. In two of the houses the amusement rooms are heated by direct runs from the heaters.

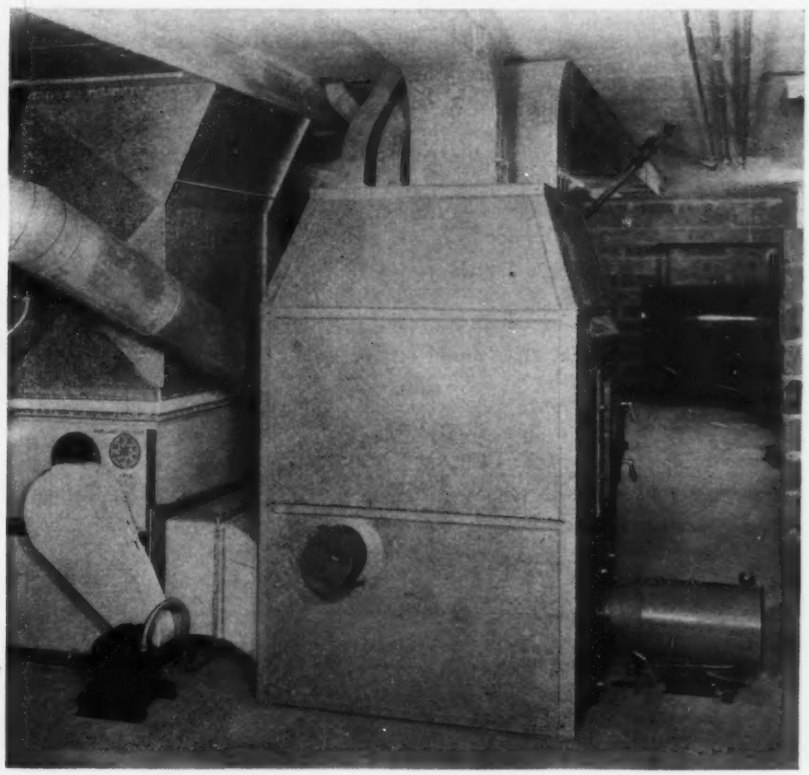
In laying out these jobs the system known as "individual duct systems" was adopted; in other words, with an individual duct from the furnace casing to each register. Rectangular ducts were used and these were grouped wherever possible to simulate trunk duct work in appearance.

Stock size fittings were used in all of the warm air runs, except that special elbows and angles were furnished with long, easy turns to minimize resistance.

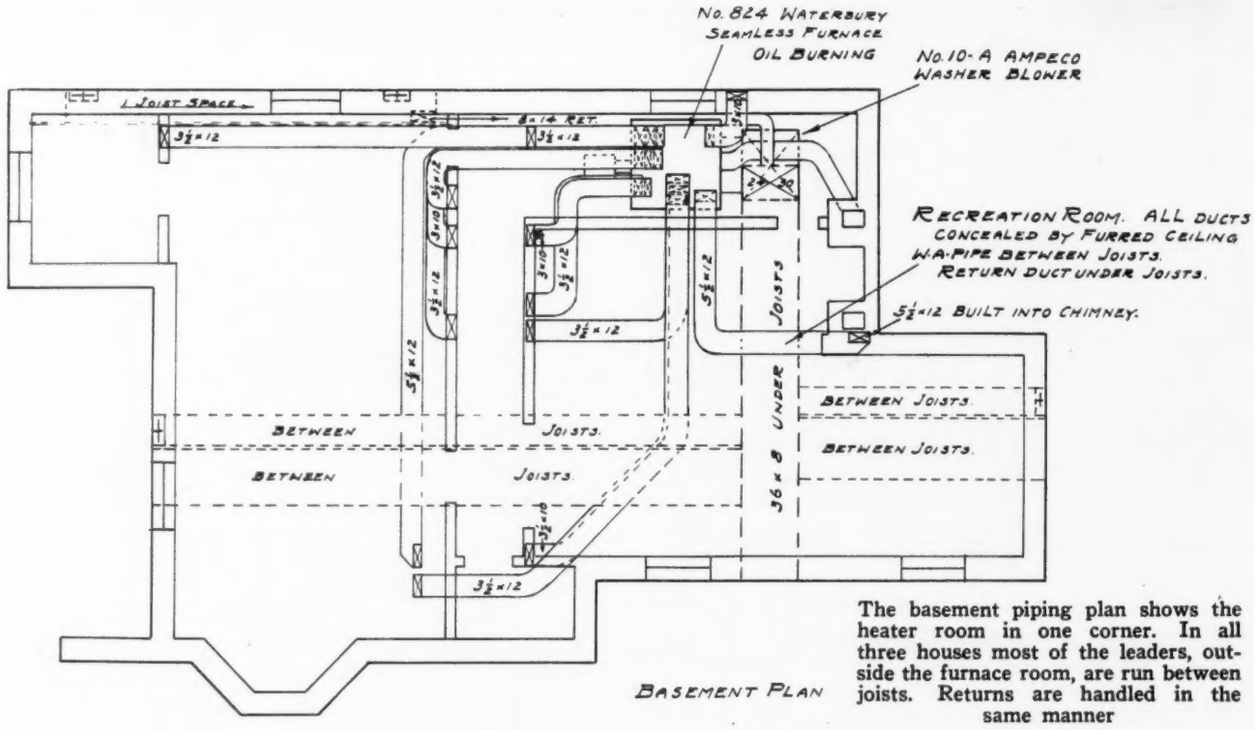
The square casings are attractively finished and lined with special baffles to force impingement of air over the heating surfaces of the furnaces. This is shown in a detail. The rectangular runs allow plenty of head room all around the furnaces and disappear into spaces between joists as rapidly as possible.

In one of the three homes where it was necessary to run several of the warm air and cold air pipes across the recreation room ceiling, this ceiling was dropped sufficiently to conceal all of this piping.

Side wall registers of special forced air design were used for both warm air and return air. Special attention was given to making these registers streak



The conditioning unit is composed of a steel furnace, oil burner, and a combination washer and blower. Note that every run is an individual pipe from the bonnet



The basement piping plan shows the heater room in one corner. In all three houses most of the leaders, outside the furnace room, are run between joists. Returns are handled in the same manner

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proof. (See detail.) Boxes and registers were painted to match the finish of the rooms. There are no floor registers in any one of the three houses.

The washer and blower is controlled through a furnacestat wired in series with the thermostat, so that washer and blower will not operate except when the furnace temperature is high enough to assure a supply of warm air. In two of the houses the washer is further controlled through a Humitrol which cuts off the water supply in case of excess humidity.

The results of these installations are substantially as follows:

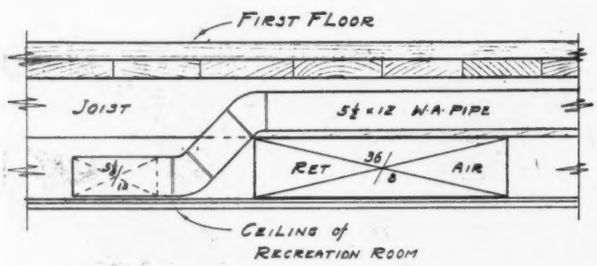
1. These homes are heated with humid, washed air, and for that reason and because of air circulation, there is a constant feeling in these homes such as one experiences on a beautiful June day. The air is invigorating; the home is cleaner, more wholesome and healthful.

2. In summer these homes were cooled appreciably by the simple operation of the forced air circulating system, and gave year-around comfort condition which is greater by far than could be supplied by any other type of heating system at anywhere near the cost of these systems.

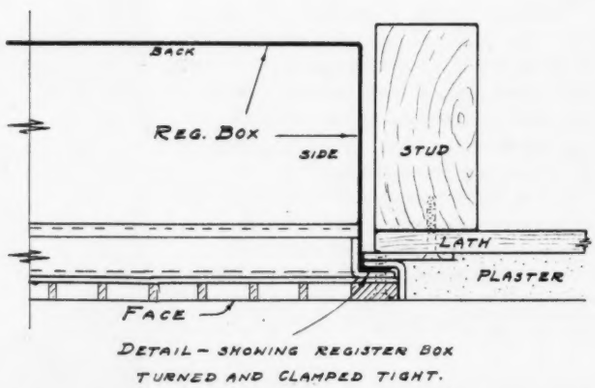
3. Operating expense for fuel, water and electricity will apparently be no greater than the expense for fuel alone with other types of heat. This is accounted for by the higher efficiency of a forced air system.

So far no accurate humidity tests have been run, but visible humidity conditions indicate that the washers are supplying all the humidity the construction will stand. This is further checked by the operation of the humidity controls in two of the houses, as these controls have to date satisfied most of the operating periods.

The cost of the conditioning systems complete in no case exceeded 10 per cent of the total cost of the house, exclusive of the cost of the lot.



This cross section detail shows a crossing of warm and return air pipes in a recreation room where the ceiling is hung underneath the bottom pipe



Special construction was employed at the register faces to insure absolute tightness in the connection. This detail shows how the box was fastened in place

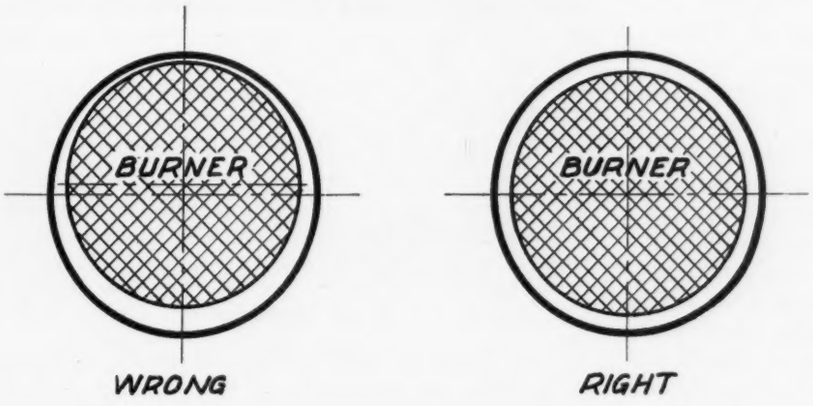
Conversion Burners

How to Install, Adjust and Test Them in Furnaces

By L. C. Price

WITHIN recent years an extension of natural gas pipe lines has taken place, bringing gas to many new communities. Wider availability, improvement in reliability of supply and well-known advantages in the way of cleanliness and ease of control have resulted in a very large increase in the use of gas for residence heating. A considerable part of this expansion has been through application of gas to coal-burning warm air furnaces by means of conversion burners.

Furnaces designed to burn gas are furnished by the manufacturers as complete units, and can only be installed as the designer intended. Conversion burners, on the other hand, must be adaptable to many types of existing furnaces, and installation in these furnaces must be made by a local man, probably a furnace dealer, who may or may not have any knowledge of the fundamental principles of combustion and heat transfer. Consequently, conversion burners can never be made quite foolproof and, regardless of the excellence of any burner itself, its operating economy depends very largely on the manner of its installation. When certain requirements in installation are met, conversion burners have been found to give uniformly good economy. It is the purpose of this article to state the most important of these requirements and the reason therefor, based on the author's experiences with a large number of such installations. The discussion will be confined to the atmospheric burners, as the author has had no experience with the blower type.



Whether furnaces are round or rectangular the burner must be located directly in the center. This shows application to a round fire-pot. The air space around the burner is the important feature

Fundamental Principles

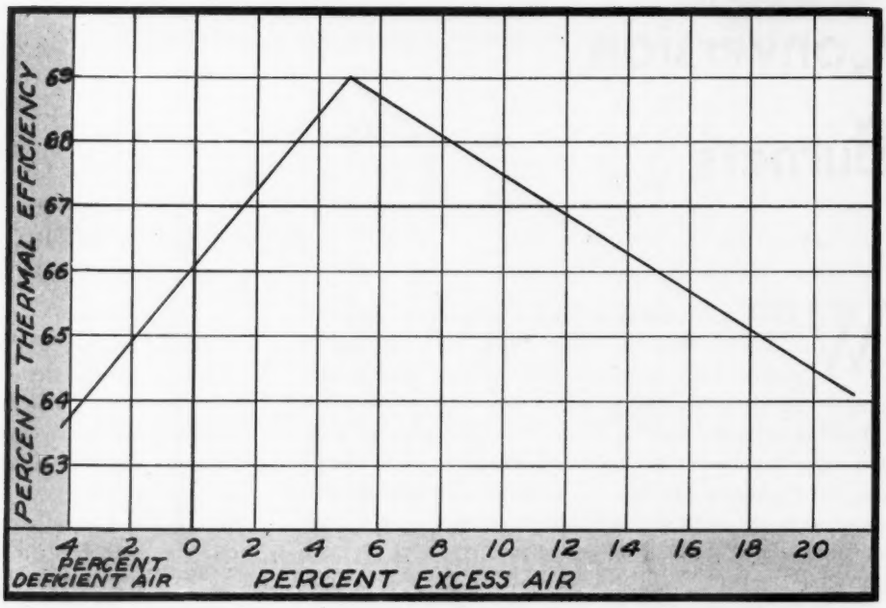
It is universally true that the house never receives all the heat that the burning fuel puts into the furnace. Some of it is lost unavoidably.

During combustion, both the fuel itself, and the air required to burn it, are heated to flame temperature. The hot combustion products then pass through the furnace passages and give up a large part of their heat, which is delivered to the house. If these gases could be cooled to room temperature before entering the chimney, all the heat could be recovered. This, however, is never possible, and some heat is unavoidably lost up the chimney. This, commonly called the stack loss, is the largest of the unavoidable heat losses, and includes both heat in the water vapor formed by burning of the gas and the sensible heat of the dry stack gases.

Some water vapor is formed by burning of the hydrogen in the fuel. Condensation of this would be a nuisance, even if it were practicable, so that the stack gases must always be hot enough to carry it off as vapor. The heat required to change this water from liquid at room temperature to vapor at stack temperature is thus unavoidably lost. Usual stack temperatures are between 300 and 500 degrees Fahrenheit, so that the hot dry flue gas also carries away considerable heat.

The rate at which the furnace can absorb heat from the fire and hot combustion products increases with their temperature, and also with the intimacy of contact between these gases and the furnace walls. The amount of heat absorbed depends also on the extent of furnace wall surface over which the hot gases pass.

Best furnace efficiency is thus realized when the gas burns with the hottest possible flame and when the flame and hot combustion products are made to pass over as much of the furnace wall as possible and to hug it as closely as possible. The first of these requirements involves both good mixing of gas and air, dependent on the installation, and proper air supply, which is a function of adjustment afterward. The factors involving installation, namely mixing of fuel and air, and heat absorption, will be discussed first.



This chart shows the typical relation between efficiency of the burner application and the air supply. The line indicates that the highest efficiency is obtained with about 5 per cent excess air

Mixing of Gas and Air

Every cubic foot of gas requires a very definite volume of air for its complete combustion. The exact amount depends on the composition of the gas. If it burns without enough air, carbon monoxide gas escapes, which not only is dangerous to human life, but which, being combustible, carries away much potential heat. On the other hand, any unnecessary excess air must be heated by the flame, which is itself cooled thereby. It is evident, therefore, that the hottest fire is obtained when the excess of air is kept as small as possible consistent with perfect combustion.

If it were possible to mix gas and air perfectly, only the theoretical amount of air would be necessary. Perfect mixing is never quite possible, so that enough excess air must always be supplied so that each particle of gas will find a mating particle of air, to avoid the presence of CO in the stack. The percentage of this necessary excess air thus depends on what might be called the mixing factor, or the percentage of the total air which is intimately mixed with the gas before and during combustion. This factor is somewhat dependent on the burner design, but also very largely depends on its installation. The writer has encountered extremely good installations that required only 4 to 5 per cent excess air, others not so good that required 10 per cent, and some very bad ones that could not get along on less than 50 per cent excess.

Gas burners are designed so that the gas issues in small streams or thin sheets. The air must be brought up close to the streams or sheets of gas, through narrow openings, and, to give all the air an equal chance to mix with the gas, these openings should be of uniform width. This necessitates careful centering of round burners and stoppage of all openings which do not bring air to the fire. Figure 1 shows the installation of a round burner of the Bunsen type. The size selected is usually about two inches smaller in diameter than the furnace firebox. If the burner is installed off-center, as shown at the left, it is obvious that more air passes on the side where the clearance is greatest and that an attempt to restrict the total air supply until there is no excess there will result in a deficiency elsewhere. On the other hand, if enough air is supplied on the narrow side, there will be a considerable excess everywhere else. In such cases, careful centering of the burner, as shown in the right-hand view, always results in a reduction in the air requirements and a rise in efficiency.

A burner which is not round, or which does not fill the firepot, will usually give better results if a sheet metal floor is laid level with the burner tips, and cut out so that the only air passage is an opening ½ to ¾ inch wide around the burner.

The subject of mixing also covers admission of air above the fire. Air admitted in this way has no part in the combustion, but is simply drawn through the furnace passages and cools them. Consequently it is necessary that the fire door, fire door damper, and clean-out doors be kept closed, and that special pains be taken to stop all leaks through and around them.

Heat Absorption

To insure that as much heat as possible is transferred from the hot combustion products to the house, it is necessary, first, that the hot gases pass over as much of the furnace wall as possible, second, that they "hug" the wall as closely as possible, and third, that the air on the other side of the wall shall circulate rapidly.

The first of these requirements necessitates placing the burner low in the furnace so that the flame will strike the wall as near the grate line as possible. In the case of a burner which uses a baffle to throw the flame against the furnace walls, this may mean that the burner tips will be slightly below the grate level.

Steel furnaces usually have their firepots lined with firebrick, the object of which is to protect the metal from corrosive action and from the weight and heat of the red-hot fuel bed. After a gas burner is installed in the furnace, this lining not only is unnecessary, but keeps heat away from the metal walls and so reduces efficiency. It should, therefore, be removed, so that the gas flame can reach the furnace wall.

Some burners direct the flame against the furnace wall. Others use sloping baffles of firebrick for the same purpose. Still others are of the box type, with the fire in the center of the firepot. With burners of this last type it is always necessary to use a baffle to throw the flame out against the wall. These baffles are usually about 2 inches smaller in diameter than the firepot, so as to leave 1 inch clearance all around. If this clearance is too large, the flame will not be forced into close contact with the furnace wall.

The rate of heat transfer between any two substances separated by a metal wall, increases with the temperature difference between them and with the speed of their flow over the wall surface. The importance of a hot fire and close contact between hot gases and furnace walls has already been shown. It remains to circulate the air on the other side as rapidly as possible, and to hold its temperature down. Both these ends can be accomplished by a circulating fan, forcing the air to flow rapidly down the cold air pipe, through the furnace jacket, where it is heated, and up through the warm air pipes. The use of a circulating fan is advantageous with a coal-burning furnace; it becomes almost necessary for the sake of economy when burning gas. Control of the fan can be made automatic, turning on and off with the gas, according to the demands of the house thermostat. Or, one of the automatic fan controls now on the market may be used.

[*To Be Continued*]

Principles of Humidification

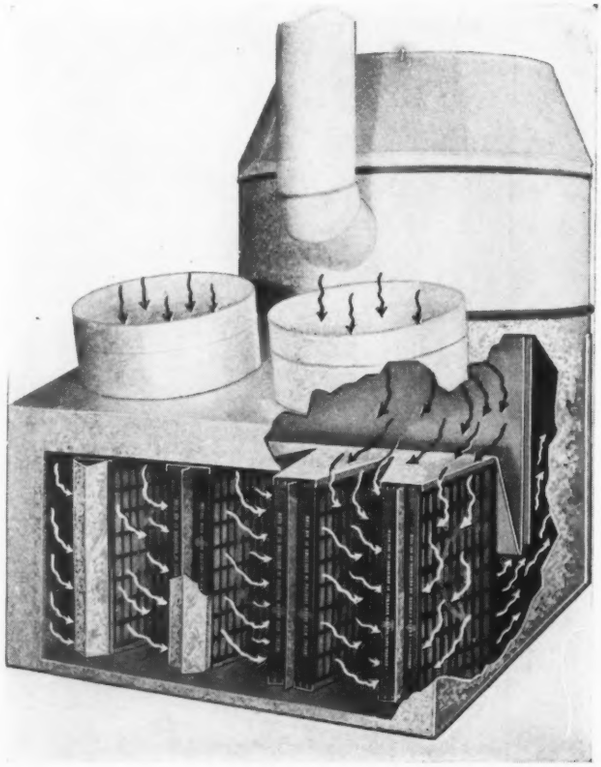
(*Continued from page* 31)

more, it only indicates that the furnace, under the three gravity conditions, was operating at different rates. Therefore, the ratios between the gravity and the fan temperatures for each setup will furnish us with the desired information.

For example, take the propellor fan in the bonnet. The bonnet temperature for gravity and also for low speed fan operation is practically identical, but the bonnet temperature falls off 20 per cent when the fan is speeded up. Applying this information to Figs. 6 and 7, we discover that high speed fan operation in the bonnet, giving a bonnet air temperature of 92 deg. will apparently reduce evaporation to zero gallons per 24 hours. Therefore, it is necessary to push up the air temperature at the bonnet in order to obtain evaporation. Of course, it will not be necessary to raise the air temperature to that needed under gravity conditions to obtain this evaporation since the increase in the amount of air handled, once evaporation is under way, will give a proportionate increase in evaporation.

Thus we find that it is necessary to use care in the operation of automatic humidifiers to insure evaporation.

Returning to the fact that the temperature difference in the average bonnet is about 110 deg. F. it is evident that, unless special care is taken to keep the furnace operating in such a manner to give reasonable bonnet temperatures, the function of the automatic humidifier will be that of a machine which runs without accomplishing its purpose.



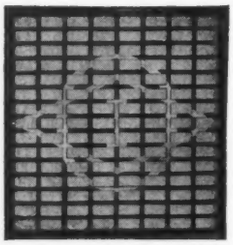
Owens-Illinois combination furnace casing and filter boot equipped with battery of eight "Dustop" filter units. The "Dustop" gravity filter casing has been adopted by a rapidly growing list of leading furnace manufacturers. No less than fifteen companies have standardized on this feature in the last six weeks.

"DUSTOP"
the
biggest sales builder
in warm air heating

• With the new Owens-Illinois combination furnace casing and filter boot, a definite selling help has been given to everybody in the warm air furnace business. A battery of our "Dustop" filters has been so arranged in this casing as to permit free passage of air in the return air pipe through the filters and into the furnace. . . Thus the warm air circulated by the heating system is freed of dust and dirt.

The public's great interest in filtered air will make this new development a telling factor in warm air furnace sales. For full particulars write Owens-Illinois Glass Company . . . . Industrial Materials Division, Toledo, Ohio.

DUSTOP
·Stops Dust·



The "Dustop" unit cleans air efficiently at less cost than any other filter on the market.

OWENS-ILLINOIS
AIR FILTERS

. . . the problem Corner

Tinning Milk Vats

In our January Problem Corner we presented the query of R. C. L., North Dakota, who asked how to tin a milk vat 3½ feet wide, 4 feet deep and 9 feet long. In addition to the replies published, the following is received from Gerken Heating Corp., Toledo, Ohio. They say:

Relative to the article "Tinning Milk Vats" which appeared on page 19 of your January edition, we are glad to submit the following from our experience in handling this sort of work.

The first step is to sandblast the surface to be tinned. Next apply two or three coats of tin with a metalizing spray gun, the usual thickness being about .010 of an inch. The tin is applied in a mat finish which can be polished down with either a steel brush or steel wool to the particular kind of finish wanted.

This is the only method we know of that makes it possible to apply a really heavy coat of tin to equipment of this nature that reduces the frequency let downs for repairs.

◆

Chimney Down Draft

American Artisan:

I have a problem on which I should like your advice.

In a home in our city there is a large fireplace which is used only on week ends. The fireplace is 6 feet wide, 5 feet high and about 35 inches deep, outside, with a 7-inch damper running the full width of the throat. The chimney is 20 by 20 inches and about 40 feet high with about 8 feet extending above the roof.

The chimney has a down draft when it is cold and when a fire is first started the smoke pours out into the room. After the chimney gets warm there is too much "pull."

Would a ventilator of some sort remedy this trouble? If so what size should it be and of what material should it be made?

H. W., Ohio.

◆

Reply by
L. P. Halleck,
The Allen Corp., Detroit.

The reader should have included the actual dimensions of the fireplace opening into the room, for upon this hinges entirely the matter of making the proper recommendation as to the size of ventilator required. It is true, of course, that the size of the flue has a considerable bearing upon our recommendation of the size of ventilator, as for instance, it would be impractical to place an 18-inch ventilator on a chimney having a 12-inch flue, even if the opening into the room warranted the use of that size ventilator.

The reader gives the dimensions of the fireplace as 6 feet wide, 5 feet high and about 30 inches deep, but we believe that he must be referring to the actual outside dimensions of the fireplace, for it is difficult to conceive that any one would have a fireplace opening that would be 5 feet high, as this in itself is entirely a bad practice. As exhaust from a fireplace of 5,000 cu. ft. for every square foot of fireplace room opening must be provided for, an exhaust unit having a capacity of approximately 150,000 cu. ft. per hour would be required.

By referring to tables of displacement capacities for our ventilators, note that this could be accomplished by a 24-inch Allen turbine ventilator.

We note that the chimney is 20 by 20 inches by about 40 inches, and here again we believe you must be referring to the outside dimensions. As such dimensions do not particularly enter into the computation of the size of ventilator required, will you therefore please obtain from your client information as regards the actual dimensions of the flue liner and the fireplace opening into the room. We can then give specific recommendations.

◆

Reply by
Paul R. Jordan,
Jones-Jordan Co., Indianapolis.

I presume that there is nothing in the way of an exhaust fan to cause a down draft. If the down draft is caused by a higher building or trees in the near neighborhood causing a downward direction at this particular point, the trouble can be cured by the use of a standard rotary ventilator which will adjust itself to wind direction. This ventilator should preferably be free from dampers, and should have bearings which will stand up in this class of work.

As to the size to use, that will depend upon looks. It is better to control the amount of draft by a damper, rather than to attempt to control it through a reduction of the size of the ventilator. While the flue is cold you will want all of the draft you can get, because it is at that time that smoke is likely to be made in greatest quantity, while at the same time your cold flue is furnishing less of a draft. Therefore, if you choke it down with a small ventilator, it will be unsatisfactory at that particular time.

On the other hand, if you control it by means of a manually operated damper and in conjunction with a full sized ventilator, you can use the extreme capacity when it is needed, and can cut it down to whatever extent is advisable after the flue gets hot.

The reader has given us no details which will enable us to make any suggestions regarding the type and location of the damper, but I assume that this is a matter which can be taken care of. Damper operation should be from the room in which the fireplace is located.

Now as to the size, I suppose the 20 x 20 inches is an inside dimension. If this is the case, the outside dimension is 28 by 28 inches or more. A 20-inch rotary ventilator would be the best thing to use. I would say that nothing smaller than a 16-inch should be used.

According to my experience, neither galvanized iron nor copper can be depended upon to last long when in contact with coal smoke, particularly a soft coal containing a great deal of sulphur. Stainless steel would be very good, but of course quite expensive. Possibly the most practical thing is a heavy gauge of acid resisting metal, that is say 20-gauge throughout of Toncan or Armco. Any of the copper bearing steels also would give much better service than an ordinary steel. If this is kept painted it will last indefinitely. Ordinary black asphaltum or any other acid resisting and heat resisting paint will answer. It should be kept painted both inside and outside and the paint worked into the joints.

New PRODUCTS

Paper Thin Copper

Among the technological developments of the past year revealed at the Roofing and Sheet Metal Industries Conference in Detroit was Electro-Deposited Copper in long, wide sheets as thin as paper. This material was displayed by The American Brass Company of Waterbury, Connecticut.

The process of electro-deposition made possible this product, which has been designated as Anaconda "Electro-Sheet." Heretofore the cost of producing thin-sheet copper by the usual methods of multiple rolling limited its use. "Electro-Sheet" weighing 1-ounce to the square foot is available 50 inches wide; 2- and 3-ounce material 30 inches wide and 4- to 8-ounce material 30 inches and 40 inches wide.

Of particular interest to the sheet metal industry is the use of 2-ounce "Electro-Sheet" in combination with asphalt for built-up roofs. The principal advantage of copper for this purpose is its water-tightness and durability.

"Electro-Sheet" may be backed with canvas, felt, burlap, insulation, wood, metal, paper, etc., opening the way to many practical and useful applications. Three-ounce "Electro-Sheet," backed with asphalt-impregnated cotton fabric, provides an easily applied roll roofing that lays out flat. This product, called "Copper-Flex," is said to be five times stronger than the better grades of roll roofing heretofore available. Seven-ounce "Copper-Flex" is furnished for flashing purposes where flexibility is an essential requirement.

◆

Register Shields

Register shields designed for application over old floor and wall registers or for use with new installations are manufactured by the W. F. Gammeter Co., Cadiz, Ohio. These shields are fabricated for fastening to the register with a minimum of alteration.

The 1933 feature of these shields is the inclusion of a dust catching pad placed so that air issuing from the register must pass over the pad which catches the dust. In addition each shield has a humidifying pan located where the greatest volume of air will pass over the water surface. The shelf top of the shield also guides the air stream across the floor. Elimination of wall streaking is claimed.

Particulars and literature will be mailed by the company.

◆

Radiator Enclosures

The Harrington and King Perforating Co., 5655 Filmore St., Chicago, announced in our January issue a new line of improved radiator enclosures so designed that any contractor might buy the sections in standard sizes and fabricate the enclosure in his shop.

The illustration herewith shows an enclosure made with these standard parts in a sheet metal shop. The completed prices for enclosures of this type are such that the contractor can sell the cabinet under the price ordinarily quoted by low-priced stores.

Complete information on designs, parts and prices can be obtained from the company.

◆

New Oil Burner

A new wall wiping flame type oil burner was recently presented to dealers by the Cleveland Steel Products Corp., Cleveland, Ohio.

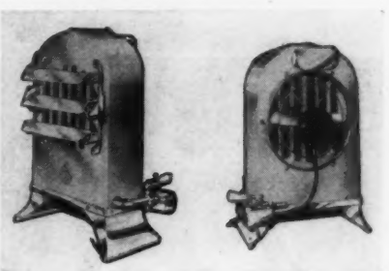
Among the features are a frictionless oil seal which permits the use of the hollow center shaft and prevents fuel oil from coming in contact with the motor bearings. Lubricating oil sufficient for three to five years of normal operation is contained in a reservoir at the bottom of the motor.

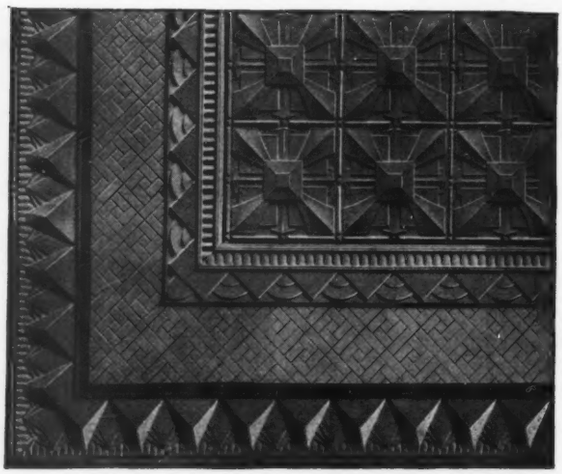
◆

Portable Gas Heater

A portable gas heater embodying fan circulation of 110 degree air is announced by Surface Combustion Corp., Toledo, Ohio. The heater can be placed on the floor or any convenient table or shelf and the warm air directed as desired by adjusting louvres.

The heater can be used wherever there is a nearby gas outlet.





Steel Ceilings and Sidewalls are Ideal for

Remodeling and Modernization

Go after remodeling work now! Berloy steel ceilings and sidewalls, because of their beauty and permanence and because they can be installed without removing plaster, fit into the economic trend of the times. And you—because the material is so easily installed and so uniform when delivered—can make a handsome profit on every job.

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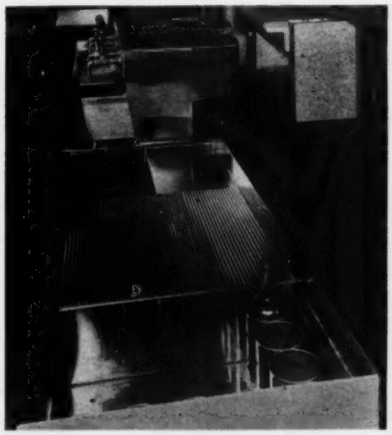
SHEET METALS *Create Profits* out of Customer-Satisfaction

Every month "Ingot Iron Shop News" offers you ideas and suggestions on how to make sales, cut costs, and turn out satisfying work. Published for ambitious contractors, by the Armco Distributors' Association. Write for your free subscription.

New Bars

The old brass rail probably will be silver when the bar comes back legally. A sign of confidence in the ultimate repeal of prohibition is being displayed by metal manufacturers who are beginning the design and construction of equipment for handling beer and similar beverages. New equipment of this nature may differ from that of the Pre-Volsteadian era in the use of the newer materials which have come into general use since that period.



White metals are now being used widely in beer service equipment in Canada and abroad and are easy to clean and keep clean. The bar shown in the accompanying photograph has been manufactured by the Federal Manufacturing Company of New York City for a restaurant in New Jersey.

◆

Air Conditioning Unit

The C. A. Stilphen Engineering & Manufacturing Company, 1129 Eighteenth Street, Denver, Colorado, has developed a new air conditioning unit for cooling, cleaning and humidifying air. The results are accomplished by evaporation. The principle of the air conditioning unit is that the air is cooled by being drawn through wet canvas or screen and evaporating the water.

The cooling element is built up of aluminum and brass with the canvas or screen zigzagged on the rotor giving a large surface to keep the resistance through the cooler low, second to give the maximum cooling effect by a low velocity of air through the screen. This screen slowly rotating through the water is kept wet all of the time. The degree of cooling and humidifying is regulated by the amount of water picked up by the screen which can be regulated by an adjustable over-flow. The desired water level is automatically maintained by a ball cock in the tank. A compartment is provided for ice. The air is drawn through the screen by the "Still-Blade" fan.

◆

Automatic Coal Furnace

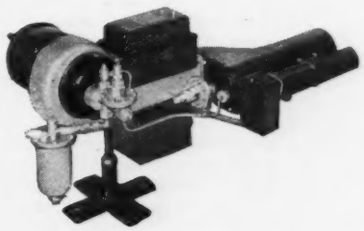
Combining electric firing, electric temperature regulation and electric limit control with a steel furnace with a built-in stoker of the over-feed type and a booster fan for insuring draft, in one unit, the Riester and Thesmacher Company of Cleveland is manufacturing on a royalty basis a new furnace for two inventors.

The new furnace has a heavy steel drum with deep radiating ribs for heat transfer. Arrangements are included for side application of the stoker which is an integral part of the furnace. This stoker operates on the principle of a charging plunger which forces a charge onto the top of the fuel bed. The blower provides air for forced draft and additional air for circulation in the casing through a circular collar around the ash pit section.

Literature describing the furnace can be obtained from the R. & T. company.

New Oil Burner

Lewis L. Scott and E. C. Newcomb, veteran engineers of the oil burner industry have just added a new, low-priced model to their line of oil burners, to be designated as Pioneer Model CJ.



Particularly designed as an "economy burner" to sell at a low price and reach the small and medium class home market, the new burner has capacities from 1½ to 3 gallons per hour and burns domestic furnace oil No. 1, 2 or 3.

Mechanical features include a Thermal Safety built as part of the burner; cut-off valve located at the nozzle to prevent "after dribbing"; silent, non-leaking pump capable of lifting oil twenty feet; continuous ignition; radio interference eliminator.

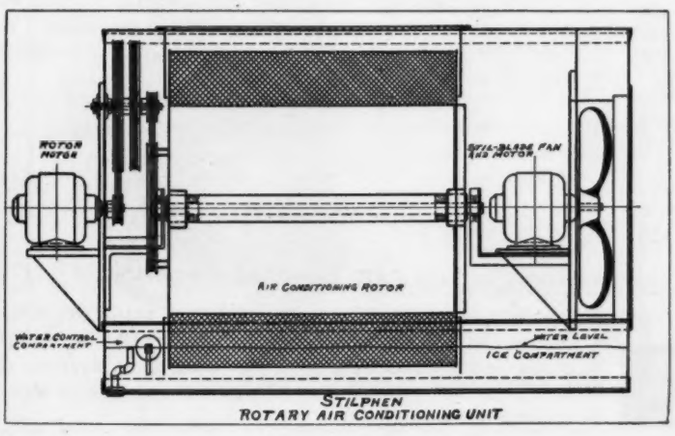
◆

Built In Electric Heater

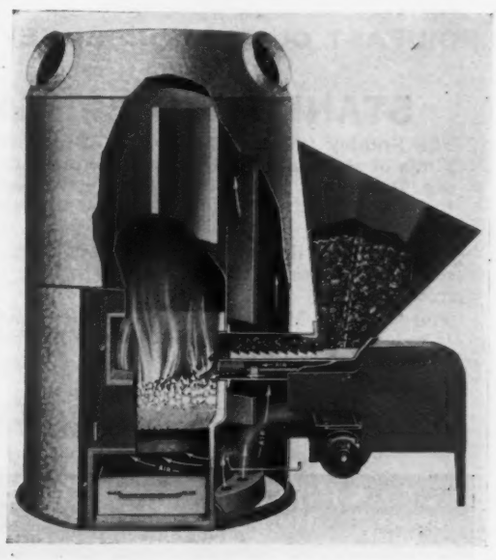
A new bath room heater, designed for sinking into the wall and provided with a small fan to insure circulation of the hot air from the electric grille has been developed by the Midwest Ventilating Works, Milwaukee.

The unit features an attractive metal grille to set flush with the wall, a coil which is kept below the red hot point by air circulation of the fan.

Leaflets describing the unit and its sales possibilities has been prepared and will be mailed upon request.



STILPHEN
ROTARY AIR CONDITIONING UNIT



News Items . . . . . .

Howard A. Holmes to Inland Steel

Mr. Howard A. Holmes has been employed by the Inland Steel Company, and will be in the company's sales department at their Detroit, Michigan, office.

During the past year Mr. Holmes has served as assistant district sales manager for the Weirton Steel Company in Chicago, and prior to that time he was located in the sales office of this company at Detroit.

◆

Salt Lake Distributor for Barber-Colman

Barber-Colman Company of Rockford, Illinois, announces the appointment of a distributor in the Salt Lake territory for their electrically operated temperature control equipment.

Mr. Rushby C. Midgley, Dooly Building, Salt Lake City, Utah, will handle this line in Utah, southern Idaho, and western Wyoming.

◆

Dail Appoints Memphis Representative

Dail Steel Products Co., Lansing, Mich., recently closed a contract with Mr. C. Fuson, 1003 Fidelity Bank Bldg., Memphis, Tenn. to handle the Dailaire line of heating and air conditioning in the western portion of Tennessee, which incorporates the trade area of Memphis, and also the eastern portion of Arkansas as far west as Little Rock, Mississippi as far south as Greenville, and the southwestern portion of Kentucky.

Mr. Fuson has spent quite a number of years in the heating industry and sees an attractive future in the air conditioning field.

◆

Thank You, Mr. Hawkins

We like to hear from readers who think we are doing a pretty good job of turning out a paper. Here's a comment we appreciate:

American Artisan,
Chicago.

Dear Sirs:

I must not let a day pass without reminding you that I think the American Artisan of September, 1932, is the best in our opinion, which has ever been published and we thank you for such a fine and helpful magazine. We trust your good work will continue as A. A. is a wonderful help to us.

Yours very truly,
(Signed) Frank E. Hawkins,
6702 Compton Ave.,
Los Angeles, Calif.

◆

Old Firm Changes Ownership

The firm of Reiche Bros., dealers in hardware, stoves, paints and sporting goods, of Naperville, Ill., in business at the same stand since 1898, has been taken over by the senior partner, Otto H. Reiche, and will continue as Reiche Hardware Company.

News Items . . . . . .

Chapple Is "Iron Master" on Radio

On Tuesday, January 17th, the ARMCO Iron Master presented a brief radio silhouette on the air conditioning of buildings and homes, as a feature of the regular ARMCO radio progam from Station WLW by the ARMCO Concert Band.

ARMCO is one of the few companies advertising a raw material and the only steel company on the air. Each week the Iron Master Chapple presents an interesting talk on the service rendered by one of the country's major industries. Bennett Chapple, vice president and director of publicity, takes the part of the Iron Master.

ARMCO radio programs are now held on Fridays at 8:00 P. M., instead of Tuesdays at 9:00 P. M.

An interesting aftermath is reported by The American Rolling Mill Co. Within a very short time letters were received from a number of listeners who, their interest aroused by the "Iron Master's" remarks about air conditioning, asked for further information concerning the application of air conditioning to residences and requesting literature on the subject.

◆

New Furnace Company Organized

Announcement is made of the organization of the Ideal Furnace Co., Milan, Mich., by Jesse B. Button, 16226 Princeton Ave., Detroit, Mich. The company will manufacture furnaces, boilers and other heating equipment, ventilating and cooling apparatus and parts.

Leaves Gas Post to Join Mueller

Millis Miller has become associated with the L. J. Mueller Furnace Co., Milwaukee, Wis., and will have headquarters in Omaha, Nebr., being in charge of Iowa and Nebraska sales. Mr. Miller resigned a post as sales manager of the Council Bluffs Gas Co., Council Bluffs, Iowa, to enter furnace sales work.

◆

I. W. Rowell Continues Talks

I. W. Rowell, general manager of the Lakeside Company, Hermansville, Mich., is continuing his addresses on air conditioning given to luncheon clubs in Michigan and Wisconsin. His latest address was before the Escanaba, Mich., Rotary Club.

Following the prescribed program this address stressed the importance and need for adequate conditioning and emphasized the strides made by this newest industry. The address explained how air conditioning might be secured at moderate cost and explained the processes and equipment necessary for satisfactory operation.

◆

Sales Representatives Appointed

Announcement is made of the appointment of Murphy & Copa, manufacturers' representatives as representatives for the Peerless Electric Co., Warren, Ohio, for the states of Florida, Alabama, Georgia, North and South Carolina and some sections of Tennessee. The firm will handle the Peerless line of fans, blowers, and air conditioning units.

News Items . . . . . .

We Beg Your Pardon!

On page 14 of our January issue we published an article detailing the stainless steel ornamental ventilator topping the Civic Auditorium in Kalamazoo, Mich. Inadvertently in our title we referred to the material as aluminum. The material, as stated in the article, is stainless steel.

◆

Milwaukee Firm Under New Name

Henry E. and Charles E. Schwab have organized the R. J. Schwab Sons Company to carry on the business of R. J. Schwab & Sons Company, which will now become inactive. The business was established in 1876 by Mr. R. J. Schwab who retired some time ago, maintaining his residence in Florida. Henry E. Schwab will be president of the new company and Charles E. Schwab will be vice-president and secretary. Both have been active for about thirty years in the heating industry.

Henry E.

Charles E.

R. J. Schwab Sons Company in addition to continuing the manufacture and sale of heating equipment will extend its efforts into the air conditioning field and allied products.

◆

Chromium Patent Case Decided

The Supreme Court of the United States on January 23rd, 1933, denied a petition to review made by International Silver Company, defendants in a suit brought against it by United Chromium, Incorporated, for infringement of the U. S. Patent No. 1581188, granted on April 20, 1926 to Colin G. Fink, covering Processes of chromium plating and the preparation of baths therefor.

In October, 1931, a decision was rendered in the Federal Court for the District of Connecticut, sustaining the patent.

The Circuit Court of Appeals for the Second Circuit, on July 29th, 1932, reaffirmed the validity of the patent. A petition by the appellants for a rehearing was denied in November, 1932. This was followed by the Petition to the Supreme Court.

◆

Rawlplug in Larger Cleveland Quarters

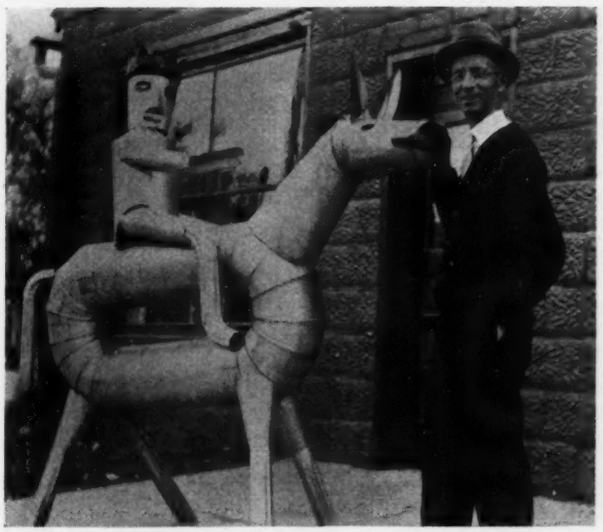
Announcement has been made by The Rawlplug Company, Inc., with general offices at 98 Lafayette St., New York City, of the removal of its Cleveland, Ohio, office and warehouse from 2032 East 22nd St., to larger quarters at 1315 West 6th St.

In the new location the Cleveland Branch will continue to operate as in the past. Truck deliveries will be provided to all parts of the Cleveland area.

News Items . . . . . .

His Business Is His Hobby

From the accompanying picture, it will be seen that M. A. Nell, general manager of the Youngstown Success Heater Company, Youngstown, Ohio, carries over his business interests into his leisure hour. At the risk of being accused of a pun, we will point out that the "hobby" in this case—although Mr. Nell calls it a jackass—is of the products which Mr. Nell handles during business hours.



Had Mr. Nell lived at an earlier time, he might have satisfied King Richard's demand for a horse—and thus won himself a kingdom. Automobile manufacturers may take warning as to what will happen in the "technocratic" future when ingenious individuals like Mr. Nell take to producing their own modes of transportation.

◆

Motor Wheel Enters Suit

Motor Wheel Corporation, Lansing, Mich., announces that suits for infringement have been filed against two competing manufacturers of oil burning equipment.

Suit has been brought in the United States District Court at Cleveland, Ohio by Ben Valjean and Motor Wheel Corporation against the Perfection Stove Company and against Sears Roebuck & Company in the Federal Court at Chicago.

Complaint is made through these suits that the line of oil burners, manufactured and sold by the Perfection Stove Company and by Sears Roebuck & Company, that use the carbureting principle of premixing the fuel vapor and air whereby to form a combustible gas, infringe the Valjean patents.

◆

Follansbee Speeds Up Mill

Follansbee Brothers Co., Pittsburgh, is increasing operations at mill at Follansbee, W. Va., and is now giving employment to about 400 men. This quota will be advanced soon to 500 men.

News Items . . . . . .

Joins Agricola Sales Organization

I. C. Livingston, widely known in the heating field, for many years connected with The Monitor Furnace Company, and for the past four years associated with The Marshall Furnace Company, is now a member of the Agricola Furnace Company sales organization.

◆

Charles P. Forshew Dies

Charles P. Forshew, vice-president and treasurer of the Faultless Heater Corp., Cleveland, Ohio, died unexpectedly of heart failure in his home on December 22.

For the past 22 years Mr. Forshew had been connected with the Graff Furnace Co., Scranton, Pa., and was president when the company was sold last year. He was also vice-president of the Faultless Co., of New York.

◆

New Dailaire Leaflet

A new eight-page leaflet, in colors, has been prepared by Dail Steel Products Co., Lansing, Mich., describing the new features adopted for their furnace and containing, also, a list of users and their costs of operation during the 1930-1931 heating season.

The leaflet is suitably illustrated with cut-away and full drawings and photographs of the furnace together with views of the outside of typical homes having the equipment and basement views showing the systems installed.

The features which are emphasized by the company are fully explained. New betterments are described in detail. The leaflet is suitable for prospects as the text explains just what the problems of forced air are and how this equipment meets these problems.

The Dail company will mail copies to contractors writing them.

◆

Combat "Free Service"

Concerted action has been taken by the Directors of the American Oil Burner Association in defense of their oil burner and fuel oil dealers in Washington, D. C., against certain practices of the Standard Oil Company of New Jersey in connection with the offering of free service to oil burner owners in exchange for long term fuel contracts in this territory.

Heading up the fight on behalf of the industry in the Washington territory, where Standard Oil of New Jersey is instituting its new sales policy, is the Oil Burning Council of Merchants and Manufacturers Association. Supporting the Washington dealers in their fight against a practice which, dealers claim, will force some of them out of business, along with independent fuel distributors are the leading manufacturers of oil burners in the United States.

Arthur W. Clark, managing secretary of the Dealer Division of the A. O. B. A., stated: "The American Oil Burner Association is much concerned over the effect that this free service offer may have toward misleading the public. Payment is generally made in some way sooner or later for any worthwhile service.

"The oil burner industry also frowns on the plan of any one service organization attempting to render satisfactory service on all makes of oil burners. The directors of the Association call attention to the fact that their oil burner dealers actually sell automatic heat and are therefore much concerned in all of the things that the users of the burners have to deal with that have any direct bearing on satisfactory automatic heat," he continued.

News Items . . . . . .

Philadelphia Association

At the December meeting of the Roofing, Metal and Heating Engineers of Philadelphia, new officers for 1933 were elected as follows:

President—J. A. Miller.

Vice-President—Richard Guenther.

Treasurer—Oliver Bartholomew.

Exec. Secretary—Fred U. Ritter.

Directors—William Beck, Jos. E. Boyle, John Wackman, Edw. Bennett, John Frick, John Naegle, Edwin Spence and Walter D. Rhea.

In addition to general business a special occasion was made of the presentation to Fred Ritter of an unusual "bill" in appreciation for his services to members. This "bill" consisted of dollar bills pasted end to end on a sheet which opened out for quite a length.

The meeting was addressed by Wm. H. Bates who related some of his experiences in the Johnstown, Pa., flood and showed pictures taken at the time of the flood.

◆

Firm Celebrates Hundredth Anniversary

This year, 1933, marks the one hundredth anniversary of the firm of W. F. Potts, Sons & Co., Inc. The firm was established in 1833 by W. F. Potts who operated under his own name until his sons Charles W., William Hibbard and John F. were taken into partnership when the name was changed to the present title. The company was incorporated in 1904.

The present officials of the firm are E. M. Balderston, president; T. J. Quin, secretary; F. D. Krautter, treasurer; F. J. McNeive, general manager.

◆

McIlvaine Training School

McIlvaine Burner Co., 749 Custer Ave., Evanston, Ill., manufacturers of the McIlvaine oil burner, announce the opening of a dealers' training school. The school is housed in separate quarters from the factory and is fully equipped with a boiler, furnace and burners for instructions on typical installations.

The course given covers completely the assembly of the burner, installation, regulation and adjustment. The course will be given Tuesday, Wednesday and Thursday of each week. Every franchised McIlvaine dealer must attend the school.

The company is also continuing its series of direct mail leaflets. The two latest mailing pieces are "Gas Heat—Costly and Variable" and "Facts About Profits."

The first leaflet gives a comparison between B.t.u. content of gas and oil and cites actual examples of how money was saved by using oil. "Facts About Profits" is a thoroughly illustrated pamphlet listing McIlvaine's 7 points of superiority, gives a complete outline of the company's dealer mailing aids and contains an imposing number of testimonials on operation.

◆

Flanged and Recessed Heads

The line of Rotary Shears and Flangers manufactured by the Niagara Machine & Tool Works of Buffalo, N. Y., can be used to produce the standard type of round recessed heads, flanged for double seaming. This is accomplished by equipping the standard machines with special flanging rolls.

News Items . . . . . .

Michigan State College to Offer Short Course in Air Conditioning

Preliminary announcement has been made of a short course on air conditioning to be held at Michigan State College on March 28, 29 and 30. This will follow the general lines of the course given last year, promoted by Dail Steel Products Company and the College.

Registration will be $3, including the banquet, and it is said that rooms in the neighborhood of the campus may be had for one dollar a night.

Complete information as to the ground to be covered by the course, the faculty, etc. will be published in the March issue of AMERICAN ARTISAN.

◆

Metallic Zinc Paint

Many of the great steel structures of Europe—bridges, towers, metal-clad factories and warehouses—are dressed in an attractive, harmonious gray, secured by using a distinctive type of paint, known as Metallic Zinc Paint.

In this paint, which is now being used to an increasing extent in the United States, the principal pigment is a metallic zinc powder, of such an extreme fineness that it is frequently referred to as "zinc dust." This powder is mixed with zinc oxide in a linseed oil vehicle of the usual type.

Metallic zinc paint has been found to be a particularly effective protection against corrosion for all exposed metal surfaces. It has been used not only on steel buildings and other structures, but on electrical equipment, on the inside and outside of water tanks, on the hulls of battleships, and under many other difficult conditions. It has been found to fill a real need in the painting of "galvanized iron" or sheet zinc surfaces, due to its unusual ability to adhere, or "stick" to these surfaces, which present an especially difficult problem for most paints.

Other qualities of Metallic Zinc Paint which recommend it to both the industrial and the general consumer are:

First—its extraordinary flexibility or elasticity, by which the paint film readily adapts itself to expansion and contraction of the underlying surface.

Second—its excellent hiding power, combined with a high spreading rate, which results in marked economy in application.

Third—its ability to serve both as a rust-inhibitive primer and as a durable, handsome finish coat, having a permanent "battleship gray" color.

Approximately fifty paint manufacturers have undertaken its production and exploitation, with the result that Metallic Zinc Paint is now readily available in any section of the country.

◆

Machine and Tool Bulletins

Two new bulletins—"Power Rotary Shears" and "School Equipment"—have been prepared by Niagara Machine and Tool Works, Buffalo, N. Y.

The first bulletin presents the line of large and small power shears, giving illustrations of the units and full description. The second bulletin gives typical school shop arrangements and recommendations for equipment.

Copies of these bulletins can be secured from the company.

New Literature . . . .

Humidifier Sales Manual

"To Help You Sell" is the title of a selling campaign booklet recently issued by the Automatic Humidifier Sales Co., 6560 Cass Ave., Detroit, to help dealers lay out and conduct a sales program under conditions as they are in 1933.

The booklet is really a complete sales manual. Chapters explain where and how to locate prospects, explains how humidifiers can be sold by using instruments in a home demonstration, explains in full detail a sales canvass, in other words tells what to say and how to guide the sales conversation, and a very complete question and answer chapter on humidity. There is also shown some excellent data on humidity.

Contractors interested in humidity campaigns can get copies of the manual by writing the company.

◆

Revised Draft Gage Booklet

A revised booklet giving design and construction details of a portable draft gage suitable for the furnace contractor's use has been prepared by the Ellison Draft Gage Company, 214 West Kinzie St., Chicago.

One of the interesting details of the booklet is a chapter outlining in understandable language just how the gage should be used to test smoke pipe, chimney, ash pit and over-fire drafts. Illustrations show how to set and connect up the gage and gives details of the readings and how to analyze them.

This booklet will be mailed to contractors writing the company. Ask for bulletin number 15.

◆

Wrought Iron Sheet Listings

Three new price listings, covering wrought iron plates, bars and sheets and containing complete differentials and extras for all gauges of materials are ready for mailing from the office of the A. M. Byers Co., Clark Building, Pittsburgh.

In addition to price listings, these leaflets also furnish specifications for some of the products. Copies of the price lists can be obtained from the company.

◆

Paint as Light

An interesting booklet, dealing with a subject not especially close to the sheet metal or furnace field, yet of considerable interest because of the many valuable facts about paint and light reflection, has been published by the New Jersey Zinc Co., 160 Front St., New York.

The booklet deals with illuminating effect of direct, indirect, semi-indirect lighting under varied ceiling and wall painting. There are also several illustrated definitions of commonly used lighting terms. Any contractor using paint in heating or metal work wishing a copy should write the New Jersey Zinc Co.

◆

Summerheat Executive Recovering

George K. Culp, president of the Summerheat Corporation of America, Dowagiac, Mich., who has been ill for some time, is reported recovering rapidly. He has been confined to bed by toxemia arthritis.

New Literature . . . .

Copper and Brass Handbook

A new handbook on "Sheet Copper" for architects and sheet metal workers has been issued by the Copper and Brass Research Association, 25 Broadway, New York City. This handbook supersedes the previous editions of "Copper Roofings" and "Copper Flashings." It contains revisions and rearrangements of all important details of the application of sheet copper in building construction. It contains, also, much new data on this subject, all based on research and taken from the practical experience of authorities.

The handbook comprises 129 pages of material, under six main sections given over to general information, roofing, flashing, drainage and accessories, specifications, and a section of miscellaneous data and tables, with a complete index at the back. It is profusely illustrated, with the accompanying text giving complete information as to application. Drawings have been simplified, either by omitting details not essential to the application under discussion or by distorting essential details to emphasize the application being described.

Copies of the book can be obtained from Copper & Brass Research Association.

◆

McIlvaine Has New Dealer Literature

McIlvaine Burner Corporation, 729 Custer Ave., Evanston, Ill., have prepared three new mailing pieces for the use of franchised dealers. The themes of these mailing pieces are indicated by their titles: "The cost of inconvenience," "Warm floors mean health and comfort," and "Money you needn't spend." Each piece is done in several colors.

◆

Air Conditioning Presentation

A presentation of the subject "Air Conditioning" has been prepared in the form of a series of short articles by Walter J. Ottinger, M. E., 1929 East 55th St., Cleveland.

Text matter is on standard size sheets, for convenience in filing or binding for reference. There are also full size charts, enabling the salesman to offer answers to the questions asked or implied by the great majority of his prospects.

Not only does this training course answer these questions, but it can be used in promoting sales, when left for a few hours with a prospect.

Complete information on prices, quantities and uses can be obtained from Mr. Ottinger.

◆

New Mailing Piece in Allegheny Series

The third of a series of six illustrated and informative bulletins has been issued by Allegheny Steel Company, Brackenridge, Pa. This mailing piece is titled "Allegheny Facilities," and calls attention to the plate mills, steel and iron foundries, open hearth furnaces, seamless tube mills, research laboratories, electric furnaces, sheet mills, lap weld pipe mills and machine shops operated by the company. The interior of the circular carries a number of large halftones showing operations of various types.

CLASSIFIED ADVERTISING

4 cents for each word including heading and address. Count seven words for keyed address. Minimum $1.00 for each insertion. One inch $3.00. Cash must accompany order. Copy should reach us eight days in advance of publication date.

BUSINESS CHANCES

LIGHTNING RODS

Dealers who are selling Lightning Protection will make money by writing to us for our latest Factory to Dealer Prices. We employ no salesmen and save you all overhead charges. Our Pure Copper Cable and Fixtures are endorsed by the National Board of Fire Underwriters and hundreds of dealers. Write today for samples and prices. Address L. F. Diddie Company, Marshfield, Wis.

SITUATIONS OPEN

UNUSUAL OPPORTUNITY—MIDWESTern furnace and air conditioner manufacturer, established over thirty years, strong financial position, has openings for three central state representatives and two eastern. These men must have strong forceful personality, with a proven background of furnace experience. Air conditioning knowledge will help. Must have ability to secure new accounts and work with dealers to get maximum production. Give complete history of experience for past eight years to qualify for interview. Confidential. Remuneration—Salary, commission and expense. Exclusive territory. If you have the ability and clean record, address Key 212, "American Artisan," 1900 Prairie Avenue, Chicago, Ill.

WANTED IN ILLINOIS SHOP—Plumber or master plumber who has some knowledge of tin work. Steady work for men with ability and able to help get business. Must be reliable and furnish reference. Address Key 208, "American Artisan," 1900 Prairie Avenue, Chicago, Ill.

WANTED—TINNER TO WORK MY shop on commission basis. Must furnish good reference. Full particulars in future correspondence. Address Key 210, "American Artisan," 1900 Prairie Avenue, Chicago, Ill.

SITUATIONS WANTED

YOUNG EXECUTIVE FOR LARGE FURnace company desires a position with some furnace company where experience and conservative business judgment is desired. Have had experience in all lines of work pertaining to office and management. Can furnish best of references. Address Key 209, "American Artisan," 1900 Prairie Avenue, Chicago, Ill.

SITUATION WANTED—I HAVE EXCEPtional ability and speed as a sheet metal worker. Able to draw over-pay when work was being done. Have hardware sales experience. Desire connections with hardware store in need of man of such ability. Over fifty, married—and A-1. Reputation for honesty, sobriety and ability. Address Key 216, "American Artisan," 1900 Prairie Avenue, Chicago, Ill.

SITUATION WANTED—HAVE HAD 25 years of experience as tinner and plumber. Am qualified to do work in the following lines: auto radiator repairing, erecting steel ceilings, pump and windmill repairing, steam and hot water work, installing radios, and any kind of mechanical job that comes into a shop. Address Key 215, "American Artisan," 1900 Prairie Avenue, Chicago, Ill.

SITUATION WANTED—A FIRST CLASS mechanic on tinning, plumbing, steam and hot water and repairing would like to rent or run a shop on commission; prefer one in connection with a hardware store in town of 3 or 4,000 and not too much competition. Am middle age—married. Address Key 214, "American Artisan," 1900 Prairie Avenue, Chicago, Ill.

SITUATION WANTED BY FIRST CLASS sheet metal and furnace man, experienced in gas installations, coal installations, forced air and air conditioning plants. Can do all branches of sheet metal work. Can lay out own work and patterns. Married, sober, steady and reliable. As for wages, a steady job and a livable wage. Address Key 205, "American Artisan," 1900 Prairie Ave., Chicago.

WANTED TO HEAR FROM HIGH GRADE manufacturers of air conditioning and heating equipment who desire the services of a representative who is thoroughly trained in engineering, designing, and the practical installation of any type of warm air equipment. Can give the best of references as to promotion ability and sales experience. Address Key 203, "American Artisan," 1900 Prairie Ave., Chicago, Illinois.

FOR SALE

FOR SALE: TEN FOOT, 16-GA. CApacity, Chicago steel brake, in excellent condition. $135.00 F.O.B. Racine, Wisconsin. Address Key 206, "American Artisan," 1900 Prairie Avenue, Chicago.

FOR SALE IN CALIFORNIA — FIRST class sheet metal and heating shop, doing some plumbing. Up-to-date equipment. Part cash, balance by the month. Address Key 207, "American Artisan," 1900 Prairie Avenue, Chicago, Illinois.

FOR SALE—1 SET OF 60" USED FORMing rolls, and 1 set of 72" forming rolls. Make offer as we are replacing with 8 ft. rolls and do not need these. Address Wendland Sheet Metal Works, San Angelo, Texas.

WANTED TO BUY

WANTED TO LEASE OR BUY A SET OF patterns for a line of cast furnaces, 20", 22"; 24" and 26" fire-pot sizes. Address Key 204, "American Artisan," 1900 Prairie Avenue, Chicago.

WANTED—A USED NO. 2 GALLAGHER shear; an eight (8) foot steel straight edge; a Chicago steel slitting shear with 10 ga. capacity or lighter. These must be in good condition and a bargain. Address Key 213, "American Artisan," 1900 Prairie Avenue, Chicago, Ill.

WANTED TO BUY—A SMALL STOCK of hardware with tin and plumbing shop in connection in western Minnesota, South Dakota or North Dakota. Address Box 473, Harvey, North Dakota.

MISCELLANEOUS

WANTED BY FIRST-CLASS STEAMFITter and master plumber a shop to run on commission basis. Willing to invest $500.00 as a guarantee of good faith. Can also do all of the sheet metal and hot air furnace work that comes into the average shop. First class references as to ability, etc. Must be in Illinois and don't answer unless you have something good to offer. Address Key 200, "American Artisan," 1900 Prairie Ave., Chicago, Illinois.

WANTED—OLD ESTABLISHED MANUfacturer is interested in making and marketing equipment for use in connection with welding or brazing. Would also be interested in any patented equipment in connection with copper service pipe or fittings. Address Key 211, "American Artisan," 1900 Prairie Avenue, Chicago, Ill.

Index to Advertisers

Firms represented in this issue are identified by the folio of the page on which their advertising appears. Advertising which appears in alternate issues is marked with an asterisk.

February, 1933

This man will buy COPPER

Just one experience with metal that rusts is enough to convince most people of the sound economy of Copper sheet metal work . . .

The public today is more than ever interested in the performance of building materials... more than ever aware that rustable metal work is troublesome and expensive. You can capitalize the public interest in durable materials, and sell profitable sheet metal jobs of Anaconda Copper more easily because of it. Leading sheet metal supply houses carry Anaconda Copper in sheets, rolls and Economy strips, and Copper gutters, leaders, elbows and shoes trade-marked ANACONDA.

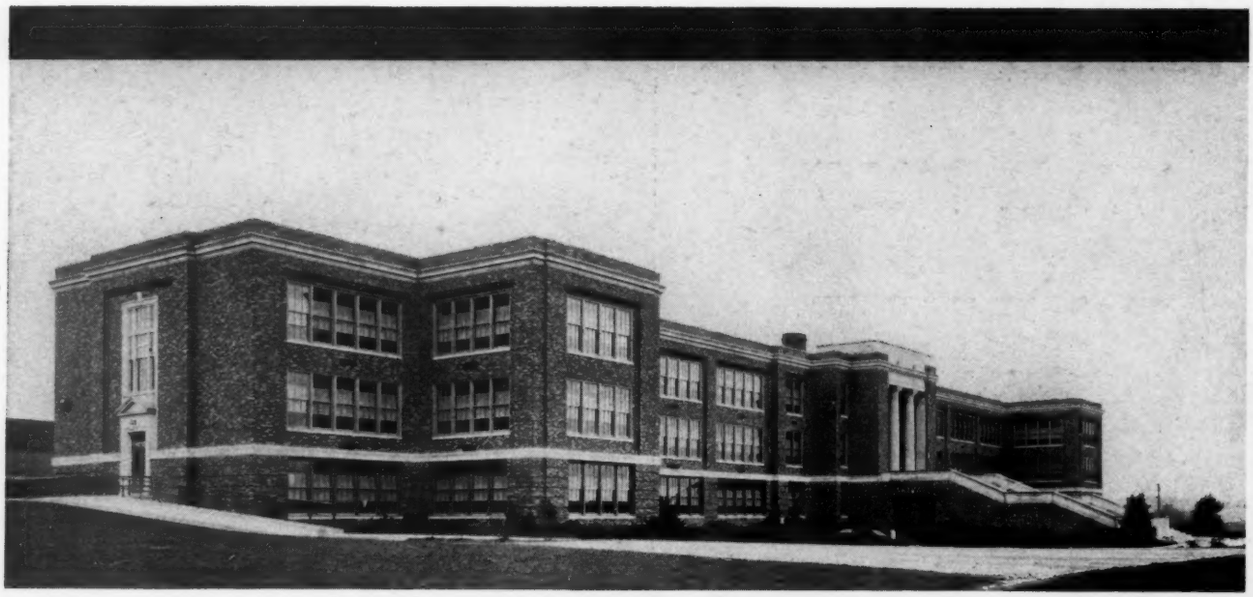
ANACONDA
from mine to consumer

THE AMERICAN BRASS COMPANY, WATERBURY, CONN.

ANACONDA COPPER

30 TONS

OF TONCAN IRON IN WORLD'S LARGEST CONSOLIDATED SCHOOL



KENNETT SQUARE CONSOLIDATED SCHOOL
KENNETT SQUARE, PENNSYLVANIA

Architect—E. William Martin, Wilmington, Delaware. Consulting Engineer—Robert Schoenijahn, Wilmington, Delaware. Sheet Metal Contractor—James D. Scott, Coatesville, Pennsylvania.

Many little old red school houses could be hidden inside the mammoth Kennett Square Consolidated School at Kennett Square, Pennsylvania, near Philadelphia. This structure is interesting for two reasons—it is the largest consolidated school in the world—and wherever interior sheet metal was used for protection, that metal was Toncan Iron.

Architects, engineers and sheet metal contractors can justify the use of this modern rust-resisting alloy of refined iron, copper and molybdenum on the grounds of economy—longer life—lower maintenance—easier working—lower installation costs.

These are the qualities of Toncan Iron that led to its use on this beautiful school—on the Berks County Court-house, Reading, Pa.—the State Office Building, Trenton, N.J.—the R. R. Donnelley & Sons Co. Building, Chicago, Ill.—and scores of similar buildings where the sheet metal specifications had to be considered most carefully that the factor of permanence might not be compromised.

REG. U.S. PAT. OFF.
TONCAN
COPPER
MO-LYB-DEN-UM
IRON

Write for the book, "The Path to Permanence." It is full of profitable suggestions for sheet metal contractors.

REPUBLIC STEEL CORPORATION

GENERAL OFFICES YOUNGSTOWN, OHIO